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DEPARTMENT OF THE INTERIOR

# WATER-SUPPLY

AND

# IRRIGATION PAPERS

OF THE

## UNITED STATES GEOLOGICAL SURVEY

## No. 61

PRELIMINARY LIST OF DEEP BORINGS IN THE UNITED STATES
PART II (NEBRASKA--WYOMING).—DARTON

WASHINGTON
GOVERNMENT PRINTING OFFICE
1902

UNITED STATES GEOLOGICAL SURVEY
CHARLES D. WALCOTT, DIRECTOR

# PRELIMINARY LIST

OF

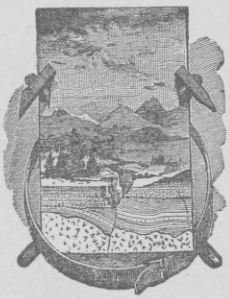
# DEEP BORINGS IN THE UNITED STATES

## PART II

## (NEBRASKA-WYOMING)

BY

N. H. DARTON



WASHINGTON
GOVERNMENT PRINTING OFFICE
1902

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# LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
DIVISION OF HYDROGRAPHY,
*Washington, D. C., November 27, 1901.*

SIR: I have the honor to transmit herewith Part II of a preliminary list of deep borings in the United States (400 feet or more in depth), by Mr. N. H. Darton, with the request that it be published in the series of Water-Supply and Irrigation Papers. Part I is in type as Paper No. 57. It has been found necessary to divide the whole into two papers, because of the statutory limit of 100 pages for these papers.

Very respectfully,

F. H. NEWELL,
*Hydrographer in Charge.*

Hon. CHARLES D. WALCOTT,
*Director United States Geological Survey.*

# PRELIMINARY LIST OF DEEP BORINGS IN THE UNITED STATES.

## PART II.—NEBRASKA-WYOMING.

By N. H. Darton.

### INTRODUCTION.

The wells and borings reported in the paper are all more than 400 feet in depth. The information concerning them has been obtained partly from replies to circular letters sent to all parts of the United States and partly from geological reports and other published sources. Owing to the difficulty of obtaining replies to the circulars, to lack of knowledge on the part of correspondents, and to the incompleteness of published records, doubtless there are borings which have not been reported. In regions of oil and gas wells, where borings are numerous, the individual wells can not be listed here, but representative wells are given. References to logs or records of the wells, or extended descriptions of them, are given in footnotes, and after the list of wells in each State there is added a list of the principal publications relating to deep borings in that State.

The bearing of the information given in the columns of the lists probably is apparent, unless, perhaps, in the one headed "Height to which the water rises." In this column an entry such as "—45" indicates that the water rises to within 45 feet of the surface; "+45" indicates that it is a flowing well and has sufficient head to raise the water 45 feet above the surface in an open pipe 45 feet or more in height. The yield in gallons per minute usually is estimated. Depths and diameters often have been reported from memory, and different sources of publication sometimes give different figures. Most wells which are not stated to be "for oil," "for gas," "brine," "abandoned," etc., in the remarks column, or "not any" in the yield column, generally afford more or less water. Many of the gas and oil wells, active or abandoned, yield salt water.

## NEBRASKA.

*(Arranged by counties.)*

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Hastings[1] | Adams | 1,145 | | | —40 | Salt water at 940 feet. |
| Harrisburg | Banner | 400-790 | | | | Several unsuccessful borings. |
| T. 34, R. 8, sec. — | Boyd | 760 | 3 | 100 | Flows. | |
| T. 33, R. 8, sec. 18 | do | 760 | 3 | 420 | Flows. | |
| Kearney | Buffalo | 2,460(?) | | | | Unsuccessful. |
| T. 10, R. 13, sec. 34 | Cass | 480 | 3 | | | Water at 30 feet. |
| Do | do | 500 | 4 | | | Water at 470 feet. |
| St. Helena[2] | Cedar | 466 | | Many. | Flows. | Water at 400 feet. |
| T. 32, R. 33, sec. 23 | do | 400 | 2 | 30 | Flows. | |
| T. 32, R. 23, sec. 24 | do | 448 | 2 | 30 | Flows. | Water at 248 feet. |
| T. 31, R. 23, sec. 11 | do | 600 | 2 | | Flows. | Water at 340 feet. |
| T. 33, R. 13, sec. 35 | do | 600 | 2 | | Flows. | Water at 600 feet. |
| T. —, R. —, sec. — | do | 602 | 2 | 25 | Flows. | Water at 550 feet. |
| T. —, R. —, sec. 10 | do | 481 | 2 | | Flows. | |
| T. 32, R. 23, sec. — | do | 445 | 2 | | Flows. | Water at 398 feet. |
| T. 6, R. 39, sec. 21 | Chase | 500 | 2 | | | Water at 22 feet. |
| Cliff | Custer | 400-485 | 3½-1¼ | Many. | No flow. | Several wells. |
| Chadron | Dawes | 400, 1,100, and 1,800 | | | | Three wells; no water. |
| T. 31, R. 5, sec. 5 | Dixon | 407 | 2 | 60 | Flows. | |
| T. 31, R. 6, sec. 20 | do | 484 | 3 | | Many. | Water at 18 feet; supply unlimited. |
| Omaha (Clark and Sixteenth streets) | Douglas | 664 | | 125 | +52 | Temp. 58°. |
| Omaha (Grant smelter). | do | 1,044 | 10-6 | 800 | +65 | Flows at 650 and 800 feet also; temp. 55°. |
| Omaha (Thirty-second and O streets). | do | 1,800 | | Many. | —70 | |
| Omaha (Elmwood Park). | do | 1,845 | | | —50 | |
| Omaha (Hanscom Park). | do | 1,120 | | Many. | —138 | |
| Omaha (Riverview Park). | do | 1,065 | | 600 | | Temp. 62°. |
| Omaha (Willow Spring). | do | 1,700 | | Many. | +100 | |
| Omaha (Exposition grounds). | do | 1,115 | | Many. | Flows. | First water at 700 feet; temp. 60°. |
| Omaha (Seymour Park). | do | 1,303 | | 500 | +35 | |
| Omaha (Pickards) | do | 1,383 | | 70 | Flows. | Temp. 62°; abandoned. |
| Omaha (Krug brewery). | do | 1,316 | | Many. | —142 | |
| Omaha (Power house, Nineteenth street). | do | 840 | | | | |
| Omaha (Cortland Beach). | do | 998 | 6-5 | | +40(?) | |
| Farm of G. E. Hawkins. | Gage | 1,260 | 6 | | Flows. | |
| Beatrice | do | 1,200 | | Few. | Flows. | |
| Farm of W. E. Robertson. | do | 1,240 | 6 | | Flows. | Water at 50 feet. |
| Hyannis | Grant | +400 | | | | Two wells. |
| O'Neill | Holt | 1,300 | | | | Unsuccessful. |
| Farm of E. Demerit | Hooker | 1,200 | | | Flows. | |
| Dannebrog[3] | Howard | 1,011 | | | | Do. |
| T. 2, R. 2, sec. 4 | Jefferson | 500 | 4 | | +½ | Seven borings for coal; strong salt water at 225-238 feet; temp. 70°. |
| T. 13, R. 35, sec. 5 | Keith | 525 | 6 | 500 | | Water at 7 feet. |
| T. 14, R. 41, sec. 2 | do | 407 | 3½ | 2 | | Water at 385 feet. |
| T. 12, R. 37, sec. 8 | do | | | | | Water at 176 and 305 feet; 137 feet of water in well. |
| T. 9, R. 8, sec. 29 | Kimball | 460 | | Many. | No flow. | |
| T. 32, R. 6, sec. 16 | Knox | 656 | 8 | Many. | Flows. | Water at 625 feet. |
| T. 33, R. 8, sec. 18 | do | 770 | 3 | | Flows. | Water at 740 feet. |
| T. 33, R. 3, sec. 13 | do | 504 | 2 | 90 | Flows. | Water at 482 feet. |
| T. 32, R. 6, sec. 8 | do | 600 | 2 | 280 | Flows. | Water at 435 feet. |
| T. 32, R. 6, sec. 16 | do | 656 | 8 | 2,500 | Flows. | Water at 575 feet. |
| T. 32, R. 6, sec. 16 | do | 656 | 8 | 2,500 | Flows. | Water at 600 feet. |
| T. 32, R. 6, sec. 16 | do | 630 | 8 | | Flows. | |

[1] Record, U. S. Geol. Survey, Water-Supply and Irrigation Paper No. 12, pp. 37-38.
[2] Record, Am. Assoc. Adv. Science, Proc., vol. 35, 1886, pp. 217-219.
[3] Record, U. S. Geol. Survey, Water-Supply and Irrigation Paper No. 12, p. 47.

## NEBRASKA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| T. 32, R. 2, sec. 17 | Knox | 420 | | 50 | | |
| Santee Agency Mission.[1] | do | 603 | 2½ | 20 | | |
| Lincoln (sanitarium).[2] | Lancaster | 570 | | | | |
| Lincoln[3] | do | 985 | | | −100 | Salt water at 244 and 544 feet. |
| Lincoln (Burlington Beach). | do | 2,463 | | Many. | Flows. | Salt water. |
| Lincoln (public square). | do | 1,050 | | Many. | Flows. | Salt water at 560 feet and 1,050 feet. |
| Tilden | Madison | 400+ | 4 | | −90 | |
| Norfolk | do | 472 | | | −100 | |
| Brownville[4] | Nemaha | 1,001 | | | | |
| Nebraska City | Otoe | 448 | 4 | ½ | +6 | Mineral water. |
| Do | do | 1,000–1,200 | | | | Several deep wells in progress. |
| Do | do | 570 | | | | Salt water. |
| Dubois | Pawnee | 562 | 6 | | | Unsuccessful. |
| McCook | Redwillow | 400 | 8 | | | Some water at 375 feet. |
| Falls City | Richardson | 1,300 | | | | |
| Rulo (2 miles west) | do | 1,370 | | | | Coal prospect. |
| Seward[5] | Seward | 610 | | | No flow. | Abandoned. |
| Gordon | Sheridan | 580 | | | | Failure; water at 180–182 feet. |
| York[6] | York | 590 | | | +16 | |
| Ericson | Wheeler | (?) | | | | Failure. |

[1] Record, 51st Cong., 1st sess., Senate Ex. Doc. No. 222, pl. op. p. 55.
[2] Descriptions, records, etc., U. S. Geol. Survey, Water-Supply and Irrigation Paper No. 12, pp. 28–30; Am. Assn. Av. Science, Proc., vol. 35, p. 218; Physical Geography and Geology of Nebraska (Aughey), 1880.
[3] Record, Am. Assoc. Adv. Science, Proc., vol. 35, p. 218.
[4] Am. Assoc. Adv. Science, Proc., vol. 35, pp. 217–219.
[5] Record, U. S. Geol. Survey, Water-Supply and Irrigation Paper No. 12, p. 31.
[6] Ibid., pp. 33–34.

## PRINCIPAL PUBLICATIONS RELATING TO DEEP BORINGS IN NEBRASKA.

Underground Waters of a Portion of Southeastern Nebraska, by N. H. Darton, United States Geological Survey, Water-Supply and Irrigation Paper No. 12, 56 pages, maps, plates, Washington, 1898.

A Preliminary Report on the Geology and Water Resources of Nebraska west of the one hundred and third meridian, by N. H. Darton, United States Geological Survey, Eighteenth Annual Report, 1896–1897, part 4, pages 719–785, Washington, 1899.

## NEVADA.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Battle Mountain[1] | Lander | 800 | 6 | | | Strong flow. |
| Do.[2] | do | 650 | | 58 | | Several flows at less depths. |
| Dalamar | Lincoln | 800 | | | | Unsuccessful. |
| ——[3] | Ormsby | 400 | 6–7 | 5 | | Several wells. |
| Ely | White Pine | 600 | | Several. | | |
| Sierra Valley[4] | (?) | 1,132 | 3 | 30 | | Hot water. |
| Vail Ranch | Churchill | 400 | | | No flow. | |

[1] Nevada, Report Surveyor-General and State Land Register, 1891-92, p. 72.
[2] Ibid., 1889–90, p. 82.
[3] Ibid., 1891–92, p. 72.
[4] Ibid., 1889–90, p. 82.

## NEW HAMPSHIRE.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Dover | Strafford | 400 | 6 | 100 | No flow. | |
| Concord | Merrimac | 1,325 | 6 | Few. | —16 | Well abandoned; water at 935 feet. |
| Manchester | Hillsboro | 630 | 8 | Few. | No flow. | |

## NEW JERSEY.

| | | | | | | |
|---|---|---|---|---|---|---|
| Allenhurst [1] | Monmouth | 530 | | | Flows. | |
| Do | do | 545 | | | Flows. | |
| Asbury Park [2] | do | 448 | 8 | 65¼ | Flows. | Good water; temp. 60°. |
| Do | do | 800 | | | Flows. | |
| Do | do | 1,130–1,045 | 6 | 1,000 | Flow. | Two wells. |
| Do. [3] | do | 1,330 | | | Flows. | |
| Atlantic City [4] | Atlantic | 578 | 8 | | Flows. | Water at intervals from 328 to 554 feet. |
| Do | do | 809 | 6 | | Flows. | |
| Do | do | 1,150 | 8–6 | | +5 | No water 960–1,120 feet. |
| Do | do | 960 | 6–4½ | | Flows. | Pumps 200 gallons. |
| Do | do | 554 | 8 | 50 | Flows. | |
| Do | do | 735 | 6–4½ | | Flows. | Do. |
| Do | do | 720 | 6 | | Flows. | Pumps 250 gallons. |
| Do | do | 780 | 6–4½ | 150 | Flows. | |
| Do | do | 763 | 8 | Many. | Flows. | |
| Do | do | | | | | |
| Do | do | 1,398 | 10–4½ | | | No water at this depth. Several flows above. |
| Do | do | 805 | 8–4½ | 40 | Flows. | Pumps 125 gallons. |
| Do | do | 843 | 6 | 100 | Flows. | |
| Do | do | 813 | 6 | 105 | Flows. | Pumps 400 gallons; temp. 66°. |
| Do. [5] | do | 1,400 | 10–4 | | | No water at this depth. Several flows above. |
| Atlantic Highlands | Monmouth | 480 | 4½ | 250 | Flows. | |
| Avalon [6] | Cape May | 925 | 10–4½ | 75 | 8 | |
| Avon Inn [7] | Monmouth | 430 | 3 | 52 | Flows. | |
| Bayhead | Ocean | 710 | | | Flows. | |
| Do | do | 885 | | | Flows. | |
| Bayhead (1 mile north). [8] | do | 813 | 4½–3 | 85 | Flows. | |
| Barnegat Park [9] | do | 670 | | | Flows. | |
| Bayonne | Hudson | 600 | | Few. | | |
| Beach Haven [10] | Ocean | 430 | 3 | 10 | Flows. | |
| Do. [8] | do | 575 | 8 | 125 | Flows. | |
| Belmar [9] | Monmouth | 445–480 | | | Flow. | Four wells. |
| Do | do | 640–660 | | | Flow. | Two wells. |
| Berkeley Arms [11] | Ocean | 475 | | 60 | To surface. | |
| Bernardsville | Somerset | 621 | | 3½ | | |
| Brigantine [12] | Atlantic | 798 | 6 | 100 | Flows. | |
| Brookdale [13] | Essex | 712 | 4½ | 174 | | |
| Burlington | | 675 | | | | |
| Cape May Point [14] | Cape May | 456 | | | | Unfinished. |
| Crab Island | | 520 | 3 | | Flows. | |
| Columbus [15] | Burlington | 715 | | | | |
| Daretown [16] | Salem | 405 | | | —100 | |
| Dealbeach | Monmouth | 500–525 | 6 | | Flow. | Two wells. |

[1] Record, etc., New Jersey Geol. Surv., Report for 1893, pp. 413–414.
[2] Record, New Jersey Geol. Surv., Reports for 1883, p. 20; 1884, p. 124; 1885, p. 129.
[3] Record, etc., New Jersey Geol. Surv., Report for 1895, pp. 72–74.
[4] Records, etc., of many wells at Atlantic City. New Jersey Geol. Surv., Reports for 1887, 1888, 1889, 1892, 1893, 1894, 1895, 1896, 1897, 1898, and 1899.
[5] Record, New Jersey Geol. Surv., Report for 1890, p. 90.
[6] Record, New Jersey Geol. Surv., Report 1898, pp. 78–82.
[7] Record, etc., New Jersey Geol. Surv., Report for 1885, p. 130.
[8] Record, etc., New Jersey Geol. Surv., Report for 1893, pp. 394–396; 1896, p. 152.
[9] Records, etc., New Jersey Geol. Surv., Report for 1896, p. 154.
[10] Record, etc., New Jersey Geol. Surv., Report for 1890, p. 266; 1893, pp. 394–396.
[11] Record, etc., New Jersey Geol. Surv., Report for 1884, p. 127; 1885, p. 133.
[12] Record, etc., New Jersey Geol. Surv., Report for 1895, pp. 77–79.
[13] Record, etc., New Jersey Geol. Surv., Report for 1897, pp. 227–229
[14] Record, etc., New Jersey Geol. Surv., Report for 1885, p. 140.
[15] Record, etc., New Jersey Geol. Surv., Report for 1892, pp. 305–306.
[16] Record, etc., New Jersey Geol. Surv., Report for 1897, pp. 250–253.

## NEW JERSEY—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Farmingdale [1] | Monmouth | 730 | | | | Water from 530 feet. |
| Flemington | Hunterdon | 405 | | 107 | −161 | |
| Fort Lee | | 1,000 | | | | Through trap into shale. No water. |
| Franklin [2] | Essex | 400 | 8 | 125 | | |
| Greenwich [3] | Cumberland | 690 | 4–2½ | | | No water found. |
| Glassboro [4] | Gloucester | 511 | | | | |
| Harrisonville [5] | do | 402 | | | | |
| Harvey Cedars | Ocean | 500 | 4 | 100 | Flows. | |
| Do. [6] | do | 500 | 4½ | 120 | +6 | |
| Hazlet [7] | Monmouth | 577 | 8–4½ | | | |
| Hightstown [8] | Mercer | 428–500 | | Many. | | |
| Hoboken [9] | Hudson | 400 | | | | Bored in 1828. Rock at 40 feet |
| Holmdel [10] | Monmouth | 601 | 8–4 | | Flows. | |
| Jamesburg [11] | Middlesex | 481 | 8–6 | 52 | | |
| Jersey City (Limbeck's brewery). [12] | Hudson | 776½ | 8 | 33 | | |
| Jersey City (Malone & Co.). | do | 500 | | 50 | | |
| Jersey City (Stock Yards). [13] | do | 455 | 8–6½ | | | |
| Jersey City (Communipaw). | do | 500 | | | | Salt water. |
| Jersey City (Sugar Refinery). [12] | do | 1,000 | 8–4 | 50 | | |
| Jersey City (Cox's brewery). [12] | do | 400 | 5 | Few. | | |
| Jersey City (Dixon Co.). | do | 1,205 | | 22 | | |
| Jersey City (Colgate & Co.). | do | 1,500 | | 15 | | Rock 35–1,500 feet. |
| Jersey City (Hudson Canal Co.). | do | 650 | | Few. | | |
| Jersey City (Traction Co.). | do | 2,200 | | | | No water. |
| Jersey City (Mehl & Co.). [14] | do | 1,007 | | 150 | | |
| Jersey City (Coal dock). [15] | do | 450 | | | | Brackish water. |
| Jobstown. [16] | Burlington | 715 | | | | |
| Kearney | Union | 600 | | 50 | | |
| Lake Como [17] | Monmouth | 535 | | | Flows. | |
| Lakewood [18] | Ocean | 475 | | 3½ | +17 | |
| Do. [19] | do | 600–625 | 6 | 100 | +200 | Several wells. |
| Loch Arbor | | 562 | | | Flows. | |
| Longport [20] | Atlantic | 803 | 6 | 180 | Flows. | Temp. 66°. |
| Mantoloking | Ocean | 790 | | 25 | +33 | |
| Do. [21] | do | 922 | | 60 | +42 | |
| Moorestown [22] | Burlington | 457 | | | | |
| Morristown (2 miles west). | Morris | 438 | 6 | 2⅜ | −60 | |
| Mount Holly | Burlington | 675 | | | | Impure water. |
| Montclair (Mount Prospect). | Essex | 510 | 7¾ | 45 | | Soft water. |
| Newark (Balentine's) | do | 529 | | 150 | | |
| Newark (Celluloid Co.). | do | 827 | 10 | 200 | No flow. | |
| Newark (Citizens' Gas Co.). | do | 600 | | 50 | | |

[1] Record, etc., New Jersey Geol. Surv., Report for 1898, pp. 98–100.
[2] Record, etc., New Jersey Geol. Surv., Report for 1884, p. 127; 1885, p. 133.
[3] Record, etc., New Jersey Geol. Surv., Report for 1885, p. 131; 1894, pp. 190–193.
[4] Record, etc., New Jersey Geol. Surv., Report for 1894, pp. 407–409.
[5] Record, etc., New Jersey Geol. Surv., Report for 1896, pp. 126–127.
[6] Record, etc., New Jersey Geol. Surv., Report for 1896, pp. 166–168.
[7] Record, etc., New Jersey Geol. Surv., Report for 1897, pp. 247–248.
[8] Record, etc., New Jersey Geol. Surv., Report for 1894, pp. 200–201.
[9] Record, New Jersey Geol. Survey, Reports for 1879, p. 132; 1882, p. 139; 1885, p. 111.
[10] Ibid., Report for 1895, pp. 147–148.
[11] Ibid., Report for 1880, p. 165.
[12] Ibid., Reports for 1879, pp. 130–132; 1882, pp. 138–140; 1885, p. 118.
[13] Ibid., Reports for 1880, p. 172; 1882, p. 139; 1885, p. 111.
[14] Ibid., Report for 1898, p. 140.
[15] Ibid., Report for 1888, p. 77.
[16] Ibid., Report for 1897, pp. 247–248.
[17] Record, etc., New Jersey Geol. Surv., Report for 1894, p. 75.
[18] Record, etc., New Jersey Geol. Surv., Report for 1885, p. 131; 1884, p. 125; 1895, pp. 148–149.
[19] Record, etc., New Jersey Geol. Surv., Report for 1898, pp. 96–98; 1899, pp. 73–74.
[20] Record, etc., New Jersey Geol. Surv., Report for 1895, pp. 83–85.
[21] Record, etc., New Jersey Geol. Surv., Report for 1895, p. 77.
[22] Record, etc., New Jersey Geol. Surv., Report for 1893, pp. 413–414.

## NEW JERSEY—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Newark | Essex | 615 | 8 | 556 | | |
| Newark (Balentine's).[1] | do | 450 | 8 | 200 | | |
| Newark (smelter)[2] | do | 500 | 8 | 500 | | |
| New Brunswick[3] | Middlesex | 455 | 1½ | | | |
| Do.[4] | do | 480 | | Few. | | Very hard water. |
| Do | do | 976 | 8 | 7 | | Water at 300-350 feet. |
| North Spring Lake | Monmouth | 705 | 6 | 100 | Flows. | |
| Ocean Beach[5] | do | 485 | 3 | 25 | +34 | |
| Do.[6] | do | 480 | 3 | 50 | Flows. | |
| Ocean Grove[6] | do | 420 | 6 | 40 | Flows. | Temp. 60°. |
| Do.[7] | do | 1,134 | | | Flows. | |
| Ocean City[8] | Cape May | 800 | | 140 | Flows. | |
| Do.[9] | do | 821 | 8 | Many. | Flows. | |
| Do.[10] | do | 760 | | Many. | Flows. | |
| Do | do | 830 | 8-6 | Many. | Flows. | |
| Passaic | Passaic | 402 | 8 | 240 | −28 | |
| Do | do | 558 | 8 | 112 | −28 | Water at 400 feet. |
| Do | do | 1,000 | | Few. | | |
| Paterson[11] | do | 2,100 | 8-4 | 100 | | Water at 900 feet only. |
| Do | do | 900 | | 100 | | |
| Point Pleasant[12] | Ocean | 806 | | 45 | Flows. | |
| Poplar | | 520 | | | −30 | |
| Reedy Island[13] | | 570 | | 20 | Flows. | |
| Sayreville[14] | Middlesex | 976 | 8 | 7 | | Some water at 300 feet. |
| Seabright[15] | Monmouth | 715 | 6-4½ | | −5 | Water 260-300, 350-390, 685-715 feet. |
| Seagirt[16] | | 755 | 3 | 50 | Flows. | Temp. 65°; water also at 570 and 694 feet. |
| Seaside Park[17] | Ocean | 515 | | 16 | Flows. | Temp. 58°. |
| Sea Isle City[18] | Cape May | 464 | | | Flows. | |
| Do[19] | do | 854 | 6 | 160 | +14 | |
| Secaucus[20] | Hudson | 600 | 6 | 8 | No flow. | Water from 200 to 250 feet. |
| Seven Islands[21] | | 408 | 6-3 | 70 | Flows. | |
| Do | | 535 | | 60 | Flows | |
| Sewell | Gloucester | 420 | 3 | | | Water also at 72, 381, and 395 feet. |
| Smiths Landing[22] | Atlantic | 715 | 6 | 100 | −17 | |
| South Beach Haven[19] | Ocean | 425 | 8-6 | 10 | +14 | |
| Spring Lake | Monmouth | 465-730 | | | Flows. | |
| Telegraph Hill[23] | | 575 | | | | |
| Toms River[24] | Ocean | 745 | | | | |
| Union | Union | 500 | | | Flow. | Ten wells. |
| Ventnor[25] | Atlantic | 813 | 6 | | Flows. | |
| West Asbury Park[26] | Monmouth | 508-558 | | 150 each | | Four wells. |
| Waverly | Union | 450 | | Few. | | |
| Wildwood | Cape May | 655 | | 300 | Flows. | Temp. 63°. |
| Do[27] | do | 1,244 | | 10 | Flows. | Temp. 67°; water at 625, 750, 843, and 1,185 feet. |
| Woodstown | Salem | 776 | | | | |

[1] Record, etc., New Jersey Geol. Surv., Reports for 1879, p. 126; 1882, p. 142; 1885, p. 115.
[2] Record, etc., New Jersey Geol. Surv., Report for 1879, p. 126; 1882, p. 142; 1885, p. 114.
[3] Record, etc., New Jersey Geol. Surv., Report for 1879, p. 133; 1882, p. 147; 1885, p. 113.
[4] Record, etc., New Jersey Geol. Surv., Report for 1887, p. 27.
[5] American Journal of Science, 3d series, vol. 30, p. 162.
[6] Record, etc., New Jersey Geol. Surv., Reports for 1884, p. 124; 1885, pp. 129-131.
[7] Record, etc., New Jersey Geol. Surv., Report for 1894, pp. 74-75.
[8] Record, etc., New Jersey Geol. Surv., Report for 1893, pp. 398-399.
[9] Record, etc., New Jersey Geol. Surv., Report for 1896, pp. 171-173.
[10] Record, etc., New Jersey Geol. Surv., Report for 1892, pp. 279-281.
[11] Record, etc., New Jersey Geol. Surv., Report for 1879, p. 128; 1882, p. 143; 1885, pp. 115, 117.
[12] Record, etc., New Jersey Geol. Surv., Report for 1895, pp. 76-77.
[13] Record, etc., New Jersey, Geol. Surv., Report for 1895, pp. 141-142; 1897, pp. 248-249.
[14] Ibid., Report for 1887, p. 27; 1888, p. 77.
[15] Ibid., Report for 1899, pp. 76-77.
[16] Ibid., Report for 1895, pp. 75-76.
[17] Ibid., Report for 1898, pp. 101-102.
[18] Ibid., Report for 1890, p. 268.
[19] Ibid., Report for 1896, pp. 175-177; 1886, p. 211; 1899, p. 109.
[20] Ibid., Report for 1879, p. 129; 1880, p. 172.
[21] Ibid., Report for 1885, p. 135; 1891, pp. 230-231.
[22] Ibid., Report for 1899, pp. 104-106.
[23] Ibid., Report for 1896, p. 153.
[24] Ibid., Report for 1893, pp. 399-400; 1894, pp. 159-180; 1898, pp. 102-103.
[25] Ibid., Report for 1898, pp. 76-78.
[26] Ibid., Report for 1899, pp. 74-76.
[27] Ibid., Report for 1897, pp. 247-248.

## PUBLICATIONS RELATING TO DEEP BORINGS IN NEW JERSEY.

New Jersey Geological Survey, Reports of the State Geologist for 1868, 1879, 1882 to 1885, 1887 to 1889, 1890, 1892 to 1899.

United States Geological Survey, Bulletin, No. 138, Artesian Well Prospects in the Atlantic Coastal Plain Region, by N. H. Darton, pp. 39–115, plates, Washington, 1896.

## NEW MEXICO.

| Location. | County. | Depth. | Diameter | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Deming | Grant | 980 | 6 | Many. | — 18 | Never used. |
| Eddy[1] | Eddy | +600 | | | No flow. | |
| Gallup | McKinley | 600 | 10 | Several. | -225 | No water below 135 feet. |
| Guam | do | 600 | 10 | | | |
| Las Vegas | San Miguel | 1,860 | 6 | Several. | — 30 | Strongly mineral water; abandoned. |
| Manuelito | McKinley | 610 | 10 | Few. | | Unsatisfactory water. |
| Raton | Colfax | 1,878 | 6 | Few. | —300 | Two wells; abandoned. |
| Do | do | 1,872 | 6 | | —300 | |
| Santa Fe | Sante Fe | 1,115 | | | | |

## PUBLICATIONS RELATING TO DEEP BORINGS IN NEW MEXICO.

Report on New Mexico, by L. G. Carpenter, Fifty-first Congress, first session, Senate Ex. Doc., No. 222, pp. 233–241, Washington, 1890.

Report of P. H. Van Diest, on the Geological Conditions of Artesian Basins in Eastern Colorado and New Mexico, Fifty-first Congress, first session, Senate Ex. Doc., No. 222, pp. 233–241, Washington, 1890.

On the Occurrence of Artesian and Other Underground Waters in Texas, eastern New Mexico, and Indian Territory west of the ninety-seventh meridian, by Robert T. Hill. A Report on Irrigation, etc., by R. J. Hinton, Fifty-second Congress, first session, Senate Ex. Doc., No. 41, part 3, pp. 41–166, Washington, 1893.

## NEW YORK.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Albany | Albany | | | | | City wells. |
| Alexander | Genesee | | | | | Salt well. |
| ——[2] | Allegany | 839-1,800 | | | | Important field of oil wells, embracing over 6,500 borings. Some 3,000 feet deep. |
| Attica[3] | Wyoming | 1,960 | | | | Salt well. |
| Auburn[4] | Cayuga | 3,570 | | | | Gas well. |
| Do | do | 3,400? | | | | |
| Aurora[5] | do | 1,068 | | | | Salty water. |
| Baldwinsville | Onondaga | 2,358 | 6¼ | | | Gas well. |
| Baldwinsville (1 mile south).[6] | do | 2,250 | | | | Do. |
| Baldwinsville (1 mile north).[7] | do | 2,795 | | | | Do. |
| Ballston | Saratoga | 560 | | | +30 | Mineral water. |

[1] Record, Report on Irrigation. Fifty-second Congress, first session, Senate Ex. Doc. No. 41, part 2, p. 16, Washington, 1893.
[2] Records, Am. Inst. Mining Engineers, Trans., vol. 16, pp. 930–934.
[3] Record, Report of Supt. Onondaga Salt Springs for 1888, pl. 2.
[4] Record, American Geologist, vol. 25, pp. 156–160.
[5] Record, Report of Supt. Onondaga Salt Springs for 1888, pl. 2.
[6] Record, American Geologist, vol. 25, pp. 150–152.
[7] Ibid., p. 154.

## NEW YORK—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Barker | Niagara | 2,175 | | | | Salt, oil, and gas. |
| Barren Island [1] | Queens | 720 | 6 | 50 | Flows. | Excellent water. |
| Do [2] | do | 740 | | | Flows. | |
| Batavia | Genesee | | | | | |
| Bath (1 mile south) | Steuben | 2,050 | | | | Gas well. |
| Binghamton [3] | Broome | 3,117 | | | | |
| Binghamton (north of). | do | 2,000 | | | | |
| Bristol [4] | Ontaria | +750 | | | | Salt well. |
| Brockport | Monroe | 2,000 | | | | For gas; unsuccessful. |
| Brooklyn borough (Calvary Cemetery.) [5] | Kings | 582 | | 70 | | Soft water. |
| Brooklyn borough (foot of Thirty-ninth and Fortieth streets). | do | 1,503 | 8-6 | | | Salt water. |
| Buffalo | Erie | 490 | 6 | | | Gas well. |
| Do. [6] | do | 1,365 | 5⅝ | | | Do. |
| | | 516-525 | | | | Several gas wells. |
| Do | do | 560 | | | | Gas well. |
| Burden | Columbia | 900 | | | | |
| Cairo (3¼ miles southwest). [7] | Greene | 2,200 | 5⅝ | | −310 | For oil or gas; abandoned. |
| Caledonia | Livingston | 1,100 | 8-6¼ | | − 25 | Salty, sulphurous water. |
| Do. [8] | do | 760 | | | | Salt well. |
| Campbell [9] | Steuben | 2,250 | | | | For oil or gas. |
| Canandaigua | Ontario | | | | | Several oil wells. |
| Canastota | Madison | 648 | | | | Bitter brines. |
| Canisteo | Steuben | 2,000 | | | | Several unsuccessful borings for gas. |
| Cardiff [8] | Onondaga | 844 | | | | |
| Castile [8] | Wyoming | 2,525 | | | | Salt well. |
| Cedarville | Onondaga | 1,157 | | | | Do. |
| Charlotte Center [10] | Chautauqua | 2,332 | | | | For oil; unsuccessful. |
| Do. [11] | do | 2,262 | | | | Do. |
| Chittenango [12] | Madison | 3,026 | | | | Gas well. |
| Clifton Springs [8] | Ontario | 710 | | | | Salt well. |
| Clyde | Wayne | 450 | 6 | | −12 | |
| Do. [13] | do | 1,792 | | | | |
| Clymer (4 miles east) [14] | Chautauqua | 1,975 | | | | Gas well. |
| Cohocton (near) | Steuben | | | | | For oil. |
| Carfu (2 miles west) | Genesee | 1,208-1,248 | 8-6¼ | | −15 and −135 | Several gas wells. |
| Curlerville [8] | Livingston | 1,145 | | | | Salt well. |
| Dansville | do | 1,800 | | | | |
| Dundee | Yates | 2,000 | | | | Rock salt at 1,800 feet. |
| Do | do | 1,200 | | | | |
| Eagleville | Madison | 1,889 | | | | |
| East Aurora [8] | Erie | 1,465-1,503 | | | | Salt wells. |
| East Buffalo | do | 1,000-3,000 | | | | For gas; unsuccessful. |
| Eden Valley [8] | do | 1,750 | | | | Salt well. |
| Fredonia [15] | Chatauqua | 1,207 | | | | Much salty water; several gas wells in vicinity. |
| Fulton [16] | Oswego | 1,656-2,050 | | | | Several gas wells. |
| Gardenville [17] | Erie | 800 | | | | Salt well. |
| Gasport | Niagara | 2,007 | | | | Gas at 1,086 feet. |
| Geneva | Ontario | 550 | | | Flows. | |

[1] Record, N. J. Geol. Surv., Report 1896, pp. 155–156.
[2] Ibid., pp. 156–157.
[3] Record, Geol. Soc., of Am., Bull., vol. 4, pp. 93–94.
[4] Record, Rept. Supt. Onondaga Salt Springs for 1888, pl. 2.
[5] Record, U. S. Geol. Surv., Bull. 138, p. 34.
[6] Record, Am. Inst. Mining Engineers, Trans., vol. 16, pp. 924–925.
[7] Record, Am. Inst., Mining Engineers, Trans., vol. 16, p. 956.
[8] Record, Report Supt. Onondaga Salt Springs for 1888, pl. 2; Report for 1885, p. 15.
[9] Record, Geol. Soc. Am., Bull., vol. 4, pp. 97–100.
[10] Record, Pa. 2d Geol. Surv., Rept., vol. I [5], p. 325.
[11] Ibid., pp. 325–326.
[12] Record, Geol. Soc. Am., Bull. vol. 4, p 101.
[13] Record, Am. Inst. Mining Engineers, Trans., vol. 16, p. 942.
[14] Record, Pa. 2d Geol. Surv., Rept., Vol. I [5], p. 228.
[15] Analysis, Am. Inst. Mining Engineers, Trans., vol. 16, pp. 918–923.
[16] Record, Geol. Soc. of Am., Bull., vol. 4, pp. 105–106.
[17] Record, Report Supt. Onondaga Salt Springs for 1888, pl. 2.

## NEW YORK—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Getzville | Niagara | 1,400 | | | | Several good gas wells. |
| Glen Springs | Schuyler | 1,500 | | | | For oil; unsuccessful. |
| Gowanda [1] | Cattaraugus | 1,700 | | | | Salt well. |
| Greenpoint [2] | Onondaga | 1,600 | | | | |
| Greig | Lewis | 700 | | | | Bored for oil. |
| Greigsville [3] | Livingston | 1,138–1,145 | | | | Salt wells. |
| Hollis Station [4] | Queens | 406 | | | | |
| Honeoye | Ontario | 646 | | | | Gas at 610 feet; several gas wells in vicinity. |
| Honeoye Falls [5] | Monroe | 1,500 | | | | Gas well. |
| Howard (one-half mile west). | Steuben | 2,000 | | | | For oil or gas; unsuccessful. |
| Hudson | Columbia | 602 | 6 | 1 | −60 | |
| Hornellsville | Steuben | 1,500 | 6½ | | | Gas at 650, 940, and 1,200 feet. |
| Do | do | 1,522 | 6¼ | | | Gas well. |
| Illion [6] | Herkimer | 1,135 | | | | Gas in small quantities at 800, 950, and 1,000 feet. |
| Ithaca | Tompkins | 2,250<br>2,250 | 10–6½<br>8–5½ | | | Two dry salt wells. |
| Ithaca (one-fourth mile south). [7] | do | 3,185 | 8–5½ | | | Gas well. |
| Jamestown [8] | Chatauqua | 1,807 | | | | Unsuccessful boring for oil. |
| Jamesville [9] | Onondaga | 1,040 | | | | Salt well. |
| Knowersville [10] | Albany | 3,012 | | | | Gas at 497 feet only. |
| Knowersville (4½ miles north). [11] | do | 2,200 | | | | For gas; unsuccessful. |
| Lakeville [12] | Livingston | 1,053 | | | | Salt well. |
| Leicester | do | 1,165 | | | | Do. |
| Leroy [13] | Genesee | 878–1,003 | | | | Salt wells. |
| Limestone [14] | Cattaraugus | 1,500 | 4½ | | | For gas or oil. |
| Liverpool | Onondaga | 600–1,969 | | | | Salt wells. |
| Livonia [15] | Livingston | 1,432 | Shaft. | | | Salt mine. |
| Do | do | 1,100 | | | | Salt well. |
| Lockport | Niagara | | | | | Do. |
| Ludlowville | Tompkins | 1,821 | 8 | | | Salt wells. |
| Middletown | Orange | 2,010 | 10–8 | 80 | Flows. | |
| Do | do | 600 | 6 | | −60 | Two wells. |
| Mohawk | Herkimer | 420 | 6 | | −30 | Sulphurous water, unfit for use. |
| Montfredys Mills | Onondaga | 1,140 | | | | Salt well. |
| Morrisville [16] | Madison | 1,889 | | | | Gas well. |
| Mount Morris [17] | Livingston | 1,130–1,422 | | | | Several salt wells. |
| Naples | Ontario | 1,650 | | | | Salt well. |
| Neversink (near) | Sullivan | 1,400 | | | | Gas boring; abandoned. |
| New Dorp | Richmond | 600 | | | | No water. |
| New Rochelle | Westchester | 1,155 | 10 | | −10 | |
| New York City, 10th and Washington sts. | New York | 500 | 6 | 600 | No flow. | |
| New York City, 11th and Greenwich sts. | do | 1,047 | 8 | 10 | No flow. | |
| New York City, 28th st., near Broadway. | do | 500 | 8 | 100 | No flow. | |
| New York City, 47th st. and 4th ave. | do | 600 | 8 | 100 | No flow. | |

[1] Ibid.
[2] Ibid. for 1884, pp. 12-15; 1888, pl. 2.
[3] Ibid., 1888, pl. 2.
[4] Record, U. S. Geol. Surv., Bull. 138, pp. 30-31.
[5] Record, Pa. 2d Geol. Surv., Report, Vol. I[5], p. 326.
[6] Record, American Geologist, vol. 25, pp. 132-135.
[7] Record and analysis, Am. Inst. Mining Engineers, Trans., vol. 16, p. 941; Report Supt. Onondaga Salt Springs for 1888, pl. 2.
[8] Record, Pa. 2d Geol. Surv., Report, Vol. I[4], p. 126.
[9] Record, Report Supt. Onondaga Salt Springs for 1888, pl. 2.
[10] Record and analysis, Am. Inst. Mining Engineers, Trans., vol. 16, pp. 951-952.
[11] Am. Inst. Mining Engineers, Trans., vol. 16, pp. 953-954.
[12] Record, Report Supt. Onondaga Salt Springs for 1888, pl. 2.
[13] Ibid., Report for 1884, pp. 19-20.
[14] Record, Pa. 2d Geol. Surv., Report, Vol. II., p. 272.
[15] American Geologist, vol. 15, p. 379; N. Y. State Geologist Report, 1893, vol. 1, p. 13.
[16] Record, Geol. Soc. of Am., Bull., vol. 4, pp. 96-97; Report Supt. Onondaga Salt Springs for 1888, pl. 2.
[17] Record, Report Supt. Onondaga Salt Springs for 1888, pl. 2.

## NEW YORK—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| New York City, 59th st. and 11th ave. | New York | 700 | 8 | 100 | No flow. | |
| New York City, 72d st. and 8th ave. | do | 1,200 | 8 | 8 | No flow. | |
| New York City, 59th st. and 5th ave. | do | 500 | | 80 | No flow. | |
| New York City, 92d st. and 3d ave. | do | 685 | 9 | 300 | No flow. | |
| New York City, 145th st. and 8th ave. | do | 605 | 10-8 | | No flow. | |
| New York City, Washington Building. | do | 1,000 | | | No flow. | |
| New York City, Manhattan Insurance Building. | do | 1,056 | 8 | 75 | No flow. | |
| New York City, Liberty and Nassau sts. | do | 720 | | 80 | No flow. | |
| New York City, N. Y. Life Ins. Building. | do | 500 | | | No flow. | |
| New York City, Fulton Market. | do | 626 | | | No flow. | |
| New York City, Broadway and Bleecker st. | do | 448 | 7 | 80 | No flow. | |
| New York City, Lafayette and Barnard sts. | do | 700 | 8 | 80 | No flow. | |
| New York City, Boulevard and 72d st. | do | 700 | | 25 | | Hard water. |
| New York City, 146th st. and 8th ave. | New York | 1,035 | 8 | 500 | No flow. | |
| New York City, 99th st. | do | 609 | 8 | | No flow. | Abandoned. |
| Do | do | 1,505 | 8 | 11 | No flow. | Do. |
| New York City, 67th st. near 3d ave. | do | 1,504 | 8 | | −32 | Do. |
| New York City, 67th st. near 2d ave. | do | 1,502 | 8 | 50 | −38 | Do. |
| New York City, Morris and Greenwich sts. | do | 625 | 8 | 40 | No flow. | Do. |
| Do | do | 700 | 8 | | No flow. | Do. |
| New York Mills [1] | Oneida | 2,000 | | | | Gas at 500 feet. |
| Niskayuna | Schenectady | 400 | 6 | 75 | −20 | |
| Norwich | Chenango | 900 | | | | Small amount of gas. |
| Do. [2] | do | 2,334 | | | | Do. |
| Nunda [3] | Livingston | | | | | |
| Olean [4] | Cattaraugus | 1,230 | | | | Gas well. |
| Pearl Creek | Wyoming | 1,182-1,194 | | | | Salt wells. |
| Pearl Creek (1 mile south). | do | 1,241 | | | | Salt well. |
| Perry [5] | do | 2,108 | | | | Heavy bed of salt. |
| Penn Yan [5] | Yates | | | | | Small supply of gas for several weeks. |
| Phoenix | Oswego | 2,600 | | | | Gas well. |
| Piffard [6] | Livingston | 961-1,141 | | | | Several salt wells. |
| Port Colborne [7] | Erie | 770-1,500 | | | | Several small gas wells. |
| Port Jervis | Orange | 1,400 | | | | Unsuccessful. |
| Richland | Oswego | | | | | Numerous gas wells. |
| Rock City (near) [8] | Dutchess | 1,471-1,546 | | | | Oil wells. |
| Rock Glen [3] | Wyoming | 2,111 | | | | Salt well. |
| Rome [9] | Oneida | 1,632 | | | | Gas wells. |
| Do. [10] | do | 832 | | | | Gas well. |
| Saltvale [3] | Wyoming | 1,436 | | | | Salt well. |
| Sandy Creek | Oswego | 1,000-1,260 | | | | Numerous oil wells. |
| Do. [11] | do | 1,145 | | | | Gas at 675, 765, and 790 feet. |

[1] Am. Inst. Mining Engineers, Trans., vol. 16, pp. 958-959.
[2] Record, Geol. Soc. of Am., Bull., vol. 4, p. 95.
[3] Record, Report Supt. Onondaga Salt Springs for 1888, pl. 2.
[4] Am. Inst. Mining Engineers, Trans., vol. 16, pp. 939-940.
[5] Ibid.
[6] Record, Report Supt. Onondaga Salt Spring for 1884, pp. 20-21.
[7] Record, Am. Inst. Mining Engineers, Trans., vol. 17, p. 401.
[8] Record, Pa. 2d Geol. Surv. Report, vol. I⁴, p. 100.
[9] Record, American Geologist, vol. 25, pp. 137-143.
[10] Ibid., p. 145.
[11] Record, Geol. Soc. Am., Bull., vol. 4, p. 107.

## NEW YORK—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Saratoga Springs | Saratoga | 400 | 6 | 3⅛ | | |
| Do | do | 1,006 | 2⅞ | 2 | +75 | |
| Do | do | 600 | 6 | ¼ | Flows. | |
| Do | do | 440 | 6 | ¼ | +40 | |
| Do | do | 520 | 6 | ¼ | +40 | |
| Do | do | 425 | 6 | ¼ | −16 | |
| Saratoga Springs | Saratoga | 478? | | | +40 | Mineral water. |
| Do | do | 422 | | | −16 | |
| Shodack Landing | Rensselaer | 1,000? | | | | Salt well. |
| Seneca Falls | Seneca | 3,560 | | | | Gas well. |
| Do | do | 400–500 | | | Flow. | Several salt wells in vicinity. |
| Do.[1] | do | 1,500 | | | | Gas well. |
| Silver Springs[2] | Wyoming | 2,254 | | | | Salt well. |
| Springfield[3] | Otsego | 419 | | 2 | No flow. | |
| Syracuse (near)[4] | Onondaga | 1,115–1,969 | | | | |
| Tivoli | Dutchess | 400 | | | | |
| Tully[5] | Onondaga | 974–1,472 | | | | Numerous salt wells. |
| Uniontown | Madison | | | | | Gas well. |
| Utica[6] | Oneida | 860 | | | | Gas well. |
| Do.[7] | do | 1,720 | | | | |
| Vernon[8] | do | 1,968 | | | | Gas well. |
| Warsaw[9] | Wyoming | 1,609–2,039 | | | | Numerous salt wells. |
| Watertown[10] | Jefferson | 530 | | | | Small flow of gas at 253 feet. |
| Watkins | Schuyler | ±2,100 | | | | Several salt wells. |
| Wellsville (4½ miles southwest).[11] | Allegheny | 1,177 | | | | Oil well. |
| West Bloomfield[12] | Ontario | 500 | 5 | | | Gas well. |
| Whitneys Point (near). | Broome | 1,120 | | | | Salt well. |
| Willets Point | Queens | 400 | | | | |
| Williamsville | Erie | Av. 875 | 5⅝ | | No flow. | Three wells; two unsuccessful. |
| Wolcott[13] | Wayne | 2,383 | | | | Gas well. |
| Woodhaven[14] | Queens | 577 | | | | |
| Woodhull | Steuben | 3,000 | | | +50 | Unsuccessful oil well; flow of water at 300 feet. |
| Wyoming[15] | Wyoming | 1,321–1,530 | | | | Salt wells. |
| York[16] | Livingston | 828 | | | | Salt well. |

[1] Record, Am. Inst. Mining Engineers, Trans., vol. 16, p. 949.
[2] Record, Rept. Supt. Onondaga Salt Springs for 1888, pl. 2.
[3] Record, U. S. Geol. Surv., Bull. 138, p. 29.
[4] Record, Geol. Soc. Am., Bull., vol. 4, pp. 102–105; Am. Inst. Mining Engineers, Trans., vol. 16, p. 944; Rept. Supt. Onondaga Salt Springs for 1888, pl. 2; for 1884, pp. 15–18.
[5] Record, Geol. Soc. Am. Bull., vol. 4, p. 105; Rept. Supt. Onondaga Salt Springs for 1888, pl. 2.
[6] American Geologist, vol. 25, p. 137.
[7] Record, Geol. Soc. Am., Bull., vol. 4, p. 100.
[8] Record, Am. Geol. vol. 25, pp. 145–149.
[9] Record, Rept. Supt. Onondaga Salt Springs for 1888, pl. 2.
[10] Record, Geol. Soc. Am., Bull., vol. 4, p. 107.
[11] Record, Pa. 2d Geol. Surv., Ann. Rept., 1886, part 2, pp. 774–775.
[12] Am. Inst. of Mining Engineers, Trans., vol. 13, p. 542.
[13] Ibid., vol. 16, p. 943.
[14] Record, U. S. Geol. Surv., Bull. 138, pp. 31–32.
[15] Record, Rept. Supt. Onondaga Salt Springs for 1888, pl. 2.
[16] Ibid.

## PRINCIPAL PUBLICATIONS RELATING TO DEEP BORINGS IN NEW YORK.

Annual Report of Superintendent of Onondaga Salt Springs for 1888, 26 pages, plates, Albany, 1889.

The Thickness of the Devonian and Silurian Rocks of Central New York, by C. S. Prosser, American Geological Society, Bulletin, vol. 4, pp. 91–118, Rochester, 1893.

United States Geological Survey, Bulletin No. 138, 232 pages, Washington, 1896.

Gas Well Sections in the Upper Mohawk Valley and Central New York, by C. S. Prosser, American Geologist, vol. 25, pp. 131–162, March, 1900.

Petroleum and Natural Gas in New York State, by C. A. Ashburner, American Institute of Mining Engineers, Transactions, vol. 16, pp. 906–953.

## NORTH CAROLINA.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Charlotte | Mecklenberg. | 900 | 2 | | | Dry. |
| Davidson | do | 500 | | | | Dry below 80 feet. |
| Durham | Durham | 1,037 | | 18 | No flow | |
| Gold Hill | Rowan | 1,000 | | | −20 | Shaft sunk for gold. |
| Hammocks | New Hanover | 400 | | 8 | | Water at 100 feet. |
| Monroe | Union | 720 | 6-5 | 28 | To surface. | |
| Do | do | 1,050 | 8-6 | 28 | Near surface. | |
| North Wilkesboro | Wilkes | 600 | 8 | 85 | | Uncompleted. |
| Sanford | Moore | 515 | 6⅝ | 45 | −3 | |
| Selma | Johnston | | | | | Two deep wells. |
| Walnut Cove | Stokes | 1,050 | 2½ | | | Unsuccessful; bored for coal. |
| Do (1 mile south) | do | 500 | | | | Good flow of mineral water. |
| Wilmington | New Hanover | 495 | | | Flows. | Saline water. |
| Do | do | 1,144 | 12-6 | 200 | | Flows of brackish water at 379, 496, 574, 608, 734, and 989 feet; 200-gallon flow at 518 feet: granite, 1,109 feet to bottom. |

## PUBLICATIONS RELATING TO DEEP BORINGS IN NORTH CAROLINA.

Artesian Well Prospects in the Atlantic Coastal Plain Region, by N. H. Darton, U. S. Geological Survey, Bulletin No. 138, 232 pages, plates, Washington, 1896.

## NORTH DAKOTA.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Bismarck[1] | Burleigh | 1,315 | 8-4 | | | No flow. |
| Devils Lake[2] | Ramsey | 1,520 | 8-3 | 82 | +46 | Flow at 1,470 feet. |
| Dickinson | Stark | 1,325 | | | | No flow. |
| Edgeley | Lamoure | 1,354 | 6 | 500 | +138 | Water at 1,300 and 1,350 feet. |
| Ellendale[1] | Dickey | 860 | | | +138 | |
| Do[1] | do | 1,087 | 4⅝–3¾ | 700 | +260 | Water at 1,042 feet. |
| Grafton[2] | Walsh | 912 | 8 | 700 | | |
| Hamilton City[3] | Pembina | 1,565 | 6 | 16½ | +60 | |
| Jamestown (asylum).[3] | Stutsman | 1,524 | 8-3½ | 4 | +161 | |
| Jamestown[1] | do | 1,476 | 6¼–3¾ | 460 | +223 | Water at 1,385 and 1,458 feet. |
| Mandan[1] | Morton | 2,000 | 10-4 | 3 | | Water at 327 feet only. |
| Medora[1] | Billings | 941 | 4 | 33 | +34½ | |
| Oakes[1] | Dickey | 977 | | | | Water at 790, 845, 870, and 937 feet. |
| Portland | Traill | 560 | | 175 | Flows. | |
| Rutland[3] | Sargent | 600 | 2 | | | |
| Sims[1] | Morton | 1,311 | | | | No flow. |
| Staples | | 514 | | 25 | +115 | |
| Towers City[1] | Cass | 716 | 6-4½ | 20-25 | +122 | |
| Wimbleton[1] | Barnes | 1,557 | | 200 | +184 | |

[1] U. S. Geol. Surv., 17th Ann. Rept., 1895-96, part 2, pp. 59-63.
[2] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, pp. 107-108, Washington, 1890.
[3] 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 322, Washington, 1890.

## PRINCIPAL PUBLICATIONS RELATING TO DEEP BORINGS IN NORTH DAKOTA.

Report of F. S. Underhill for North Dakota, Fifty-first Congress, first session, Senate Ex. Doc. No. 222, pp. 105–109, Washington, 1890.

Report on Irrigation, Fifty-second Congress, first session, Senate Ex. Doc. No. 41, part 2, pp. 66–72, 87–94, Washington, 1893.

Preliminary report on Artesian Waters of a portion of the Dakotas, by N. H. Darton, United States Geological Survey, Seventeenth Annual Report, 1895–96, part 2, pp. 609–694, Washington, 1896.

## OHIO.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | | |
| Ada[1] | Hardin | 1,384–1,820 | | | | Several wells for gas; some successful, others yield only flows of salt water. |
| Amanda Township | Allen | 1,200 | 10–5½ | | −75 | Salt water at 20 feet. |
| Akron[2] | Summit | 2,250 | | | | |
| Do.[3] | do | 2,450 | | | | Some gas at 172 feet. |
| Arcadia[4] | Hancock | 1,365 | | | | Gas at 1,180 feet. |
| Arcanum[5] | Darke | +1,150 | | | | Gas prospects; small product. |
| Arlington[6] | Hancock | 1,304 | | | | Some oil and gas at 1,304 feet. Abandoned. |
| Ashtabula[7] | Ashtabula | 500 | | | | Gas from 250 to 500 feet. Strong brine at 400 and 500 feet. |
| Athens | Athens | ±1,200 | | | | Oil and gas wells. |
| Bairdstown | Wood | 1,058 | | | | Gas wells. |
| Bairdstown (1½ miles north).[8] | do | 1,154 | | | | Gas well. |
| Bairdstown (near)[9] | do | 1,154 | | | | For gas. Abandoned. |
| Barnesville[10] | Belmont | 2,700 | | | | Gas wells. |
| Beaverdam | Allen | 1,309 | | | | For oil; salt water found. Abandoned. |
| Beaverdam (5 miles east).[11] | Hancock | 1,288–1,290 | | | | Gas wells. |
| Belden (near) | Lorain | | | | | Many oil wells. |
| Bellaire[12] | Belmont | 1,550, 2,700 | | | | Small gas wells. |
| Belle Center[13] | Logan | +1,310 | | | | Very small flow of gas. |
| Bellefontaine[14] | do | 1,590 | | | | Do. |
| Bellevue[15] | Huron | 1,700 | | | | For gas, unsuccessful. |
| Belpre[16] | Washington | +1,740 | | | | |
| Berea (2½ miles northeast).[17] | Cuyahoga | 960–1,240 | | | | Several gas wells. |
| Birmingham[18] | Erie | 2,250 | | | | Salt water only. |
| Bloomingville[19] | Hocking | 628 | | | | Small flow of oil. |
| Do | do | | | | | Two borings. |
| Bloomdale[20] | Wood | 1,115 | | | | Large flow of gas. |
| Bloomville[21] | Seneca | 2,150 | | | | For oil unsuccessful. |
| Bluffton[22] | Allen | 1,328 | | | | Unsuccessful. |
| Bowling Green[23] | Wood | ±1,300 | | | | Gas well. |
| Do[24] | do | 1,152 | | | | Large volume of gas. |
| Bradner[25] | do | 1,244 | | | | Small flow of oil. |
| Brooklyn Village[26] | Cuyahoga | 1,033 | | | | Several gas wells in vicinity. |
| Brownhelm[27] | Lorain | 740 | | | | A little gas and oil. |

[1] Ohio Geol. Surv., Report, 1888, vol. 6, p. 219; report for 1890, pp. 184–186.
[2] Record, Ohio Geol. Surv., Report, 1888, vol. 6, p. 319.
[3] Ibid., pp. 357–358.
[4] Ibid., p. 217.
[5] Ibid., pp. 272–273.
[6] Ibid., p. 218.
[7] Ibid., pp. 424–425.
[8] Ibid., pp. 229–232.
[9] Ibid., pp. 232–233.
[10] Ibid., Report, 1890, p. 254.
[11] Ibid., Report, 1888, vol. 6, pp. 215–216.
[12] Record, ibid, p. 406.
[13] Record, ibid, p. 267.
[14] Record, ibid, pp. 266–267.
[15] Ibid., pp. 214–215.
[16] Ibid., p. 401.
[17] Records, ibid, pp. 433–436.
[18] Ibid., pp. 346–347.
[19] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 393–394.
[20] Ibid., pp. 233–234.
[21] Ibid., p. 201.
[22] Ibid., p. 216.
[23] Ibid., pp. 156–159, pl., p. 112.
[24] Ibid., p. 160.
[25] Ibid., p. 207.
[26] Ibid., pp. 430–431.
[27] Ibid., pp. 437–438.

## OHIO—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Brownhelm[1] | Lorain | 635 | | | | Some oil. |
| Brown Township | Vinton | 1,000 | 10–5⅛ | | | Oil, gas, and salt water. |
| Bryan[2] | Williams | 1,974–2,037 | | | | Gas and oil wells; yield small; salt water at 2,037 feet. |
| Buckeye (east of)[3] | Knox | | | | | Gas wells. |
| Bucyrus[4] | Crawford | 840–2,264 | | | | For gas or oil; salt water flow at 780 feet. |
| Cadiz oil field[5] | Harrison | | | | | Fair flow of oil. |
| Cambridge[6] | Guernsey | 1,090–2,000 | | | | Gas and oil wells; yield small. |
| Camden[7] | Preble | 900 | | | | Gas well. |
| Canal Dover[8] | Tuscarawas | 2,760 | | | | Little gas and salt water. |
| Cannonsburg[9] | Hancock | 1,300 | | | | Several oil wells. |
| Canton[10] | Starke | 2,220 | | | | For oil, but only salt water found. |
| Do | do | +3,135 | | | | |
| Cardington[11] | Morrow | ±2,300 | | | | Gas; small flow. |
| Carey and vicinity[12] | Wyandot | 1,326–1,500 | 5⅛ | | | Several gas wells; some yield large supply. |
| Carroll[13] | Fairfield | 2,300 | | | | Unsuccessful. |
| Celina[14] | Mercer | 1,147–1,168 | | | | Gas wells. |
| Chicago Junction[15] | Huron | 1,250 | | | | |
| Circleville | Pickaway | | | | | |
| Cincinnati (vicinity) | Hamilton | | | | | Numerous oil or gas wells; unsuccessful. |
| Cleveland[16] | Cuyahoga | 400–1,500 | | | | Several gas wells. |
| Cleveland (gas company).[17] | do | 2,200 | | | | No product. |
| Cleveland (Euclid and Case avenues).[18] | do | 1,125–1,735 | | | | Small flow of gas. |
| Cleveland (Rolling Mill).[19] | do | 3,000 | | | | |
| Cleveland (Central avenue). | do | 535 | | Many. | −100 | Large supply of water. |
| Cleveland (Gordon Park).[20] | do | 520 | | | | Abandoned. |
| Cleveland (2 miles east).[21] | do | 508 | | | | For oil and coal, unsuccessful. |
| Clyde[22] | Sandusky | 1,850 | | | | Unsuccessful. |
| Coldwater (3½ miles east). | Mercer | 1,100 | 8–5⅛ | | 15? | |
| Columbus Grove[23] | Putnam | 1,278 | | | | Gas at 740 feet; some oil at bottom. |
| Columbus[24] | Franklin | 2,020 | | | | No gas or oil. |
| Columbus (State House).[25] | do | 2,775 | 6–4 | | +5 | Saline water below 675 feet; temp. 91°. |
| Conneaut[26] | Ashtabula | 850 | | | | Small gas supply. |
| Do | do | +1,942 | | | | Much strong brine. |
| Coshocton[27] | Coshocton | 2,108 | | | | |
| Do.[28] | do | 1,280 | | | | Unsuccessful. |
| Do.[29] | do | 3,100 | | | | Do. |
| Coventry Township | Summit | | | | | |
| Covington[30] | Miami | | | | | Small supply of gas. |
| Crestline[31] | Richland | 2,864 | | | | |
| Cridersville | Auglaize | 1,227 | 8–5⅛ | | −40 | Oil and salt water. |

[1] Record, Pa., 2d Geol. Surv., Report II, p. 282.
[2] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 247–249, 786.
[3] Ibid., pp. 340–343.
[4] Ibid., pp. 363–364.
[5] Ibid., Report, 1890, pp. 250–252.
[6] Ibid., Report, 1888, vol. 6, pp. 320, 377–378.
[7] Ibid., p. 285.
[8] Ibid., pp, 320, 369–370.
[9] Ibid., p. 217.
[10] Ibid., pp. 359–360.
[11] Ibid., pp. 283–284.
[12] Ibid., pp. 203–207.
[13] Ibid., p. 388.
[14] Record, Ohio Geol. Surv., Report, 1888, vol. 6. pp. 259–260.
[15] Ibid., pp. 350–351.
[16] Ibid., pp. 429–430.
[17] Ibid., p. 430.
[18] Geol. Soc. Am., Bull., vol. 8, p. 10.
[19] Record, Mich. Geol. Surv., Report, 1881–1893, vol. 5, part 2. p.73; Ohio Geol. Surv., Report, vol. 1, pp. 352–355; Ohio Geol. Surv., Report, 1888, vol. 6, pp. 351–355.
[20] Geol. Soc. Am., Bull., vol. 8, p. 10.
[21] Economic Geology of Ill., vol. 3, pp. 195–6.
[22] Ohio Geol. Surv., Report, 1888, vol. 6, p. 214.
[23] Ibid., p. 242.
[24] Record, ibid., pp. 281–283.
[25] Record, ibid., pp. 106–108· Am. Journal Science, 2d series, vol. 27, p. 276.
[26] Ohio Geol. Surv., Report, 1888, vol. 6, pp. 422–423.
[27] Record, ibid., p. 324.
[28] Ibid., p. 368.
[29] Ibid., p. 3 57; Report for 1890, pp. 245–246.
[30] Ibid., p. 274.
[31] Record, Ohio Geol. Surv., Report, 1888, vol.6. pp, 303–304.

## OHIO—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Dayton [1] | Montgomery | 870 | | | | Some shale gas. |
| Do. [2] | do | 2,440 | | | 200 | |
| Defiance | Defiance | 1,687 | | | | Salt water only. |
| De Graff [3] | Logan | 1,356 | | | | Some oil and gas. |
| De Graff (1 mile west) | do | 1,300 | 8-5⅛ | | | |
| Delaware [4] | Delaware | 2,130 | | | | Unsuccessful. |
| Delphos [5] | Allen | 1,250 | | | | Do. |
| Delphos (Kill farm) [6] | do | 1,218 | | | | Oil well. |
| Delta [7] | Fulton | 2,150 | | | | Unsuccessful. |
| Deshler [8] | Henry | 1,600 | | | | Only small flow of gas. |
| Dexter (near) | Noble | | | | | |
| Dresden [9] | Muskingum | 2,525 | | | | |
| Do. [10] | do | +1,000 | | | | Unsuccessful. |
| Duchouquet | Auglaize | | | | | Two wells of moderate flow. |
| Dudley | Noble | | | | | |
| Dunkirk [11] | Hardin | 1,865 | | | —445 | For gas; only salt water found. |
| Dunkirk [12] | do | 1,370 | | | | Large flow of oil. |
| Eagle Mills | Vinton | 600 | | | | Salt water. |
| Eaglesport [13] | Morgan | 1,134 | | | | Salt water; abandoned. |
| Do | do | 1,152 | 8-6 | | | Oil rises to 40 feet. |
| East Liverpool [14] | Columbiana | 425-450 | | | | |
| East Liverpool (on Dry Run). [15] | do | ±3,000 | | | | Several gas wells. |
| East Liverpool (Knowles well). | do | 2,954 | | | | Dry. |
| Eaton [16] | Preble | 1,170-1,375 | | | | Several wells; unsuccessful. |
| Elnore [17] | Ottawa | +1,250 | | | | Two oil wells. |
| Elyria [18] | Lorain | 987 | | | | Small gas supply and heavy flow of salt and sulphur water. |
| Felicity [19] | Clermont | 400 | | | | Gas well. |
| Findlay [20] | Hancock | 1,116-1,334 | | | | Many gas wells; some oil in several wells. |
| Do. [21] | do | 1,648 | | | | Gas well; oil at 1,092 feet; salt water at 1,581 feet. |
| Findlay (1 mile northwest). [22] | do | 1,334 | | | | Unsuccessful. |
| Flushing (1 mile northeast). [23] | Belmont | 1,680 | | | | Salt water only. |
| Forest [24] | Hardin | 1,470 | | | | Unsuccessful. |
| Forest (3 miles southwest). | do | 480 | | Many. | Flows. | White sulphur water. |
| Fort Jennings | Putnam | 1,425 | 8 | | —25 | Salt water. |
| Fort Recovery [25] | Mercer | 1,052 | | | | Gas for several months. |
| Fostoria [26] | Seneca | 1,136-1,775 | | | | Several gas wells. |
| Fremont and vicinity. [27] | Sandusky | 1,300-1,500 | | | | Do. |
| Do. [28] | do | 568 | | | | Gas well. |
| Gallipolis [29] | Gallia | 2,910 | | | | For oil; unsuccessful. |
| Geneva [30] | Ashtabula | 850-1,375 | | | | Two wells; fair flow of gas; numerous other wells in the county. |
| Genoa [31] | Ottawa | 1,308 | | | | Small flow of oil and gas. |
| Greenville [32] | Darke | 1,200-1,700 | | | | Several borings for gas; unsuccessful. |

[1] Record, Ohio Geol. Surv., Report, 1888, vol. 6, p. 288.
[2] Ibid., p. 286.
[3] Ibid., p. 268.
[4] Ibid., p. 270.
[5] Ibid., p. 240.
[6] Ibid., Report 1890, p. 217.
[7] Ibid., Report 1888, vol. 6, pp. 244-245.
[8] Ibid., p. 253.
[9] Ibid., Report 1890, p. 246.
[10] Ibid., Report 1888, vol. 6, p. 376.
[11] Ibid., p. 223.
[12] Ibid., Report 1890, p. 186.
[13] Ibid., Report 1888, vol. 6, pp. 389-390.
[14] Ibid., pp. 331-334.
[15] Ibid., pp. 322-323.
[16] Ibid., pp. 108, 284.
[17] Ibid., pp. 211-212.
[18] Ibid., pp. 347-348.
[19] Ibid., p. 301.
[20] Ibid., pp. 122-133, 146; Report for 1890, p. 125.
[21] Ibid., Report 1888, vol. 6, pp. 111-117.
[22] Ibid., pp. 131-132.
[23] Ibid., Report 1890, pp. 253-254.
[24] Ibid., Report 1888, vol. 6, p. 223.
[25] Ibid., pp. 263-264.
[26] Ibid., pp. 192-193, 146, 234.
[27] Ibid., pp. 183-189.
[28] Ibid., p. 188.
[29] Record, Pa. 2d Geol. Surv., Reports, vol. I [5], p. 335.
[30] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 425-426.
[31] Ibid., p. 213.
[32] Ibid., pp. 271-272.

## OHIO—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Hamden | Vinton | 780 | | | | Nothing but salt water. |
| Hamilton [1] | Butler | 550–700 | | | | Gas wells; small flow. |
| Hammansburg [2] | Wood | 1,194 | | | | Small flow of oil. |
| Harrisburg [3] | Franklin | 405 | 6 | Many. | Flows. | |
| Haskins | Wood | | | | | Oil well. |
| Henry Township [4] | do | 1,125–1,150 | | | | Gas wells; some oil. |
| Do. [5] | do | 1,212–1,295 | | | | Oil. |
| Hicksville [6] | Defiance | 1,710 | | | | Salt water; some oil. |
| Hillsboro [7] | Highland | 1,750 | | | | Good water at 1,750 feet. |
| Huntsville | Logan | 1,460 | | | | Gas well. |
| Independence [8] | Cuyahoga | 1,800 | | | | Several borings for oil; no product. |
| Ironton [9] | Lawrence | 3,600 | | | | Unsuccessful. |
| Island Run [10] | Columbiana | 600 | | | | |
| Jackson [11] | Jackson | 1,600 | | | | Small flow of gas. |
| Jamestown | Greene | 1,500 | | | | Salt water only. |
| Jerry City [12] | Wood | 1,155 | | | | Two wells; one with fair supply of oil. |
| Joy [13] | Morgan | 1,240 | | | | Only small flow of gas. Two wells; much salt water. |
| Kalida (1 mile north). [14] | Putnam | 1,316 | | | | Bored for oil; salt water found. |
| Kenton [15] | Hardin | 1,600 | | | | Unsuccessful. |
| Do | do | | | | | Do. |
| Kimbolton [16] | Guernsey | 1,087 | | | | Do. |
| Do | do | | | | | Some gas. |
| Lacarne [17] | Ottawa | 1,700 | | | | Much water. |
| Lafayette [18] | Madison | | | | | Unsuccessful. |
| Lancaster [19] | Fairfield | 1,030 | | | | |
| Do. [20] | do | 1,940–2,020 | 4¼–5⅝ | | | Several gas wells. |
| Lebanon [21] | Warren | 700 and 1,300 | | | | Small flow of gas; much salt water. |
| Leipsic [22] | Putnam | 1,456 | | | | Some oil and gas and great volume of salt water. |
| Lima [23] | Allen | 1,200–1,400 | | | | Numerous oil wells here and in county; much salt water found. |
| Lindsey [24] | Sandusky | 1,241–1,300 | 4 | | | Three oil and gas wells; also flow; salt water in large quantities. |
| Lisbon [25] | Columbiana | 1,582 | | | | |
| Little Sandusky | Wyandot | 1,450 | 8–5⅝ | | −40 | Salt water at 25 feet. |
| Logan [26] | Hocking | 625–689 | | | | Several wells; some oil, water, and gas. |
| Do | do | 1,002 | | | | Some oil. |
| London [27] | Madison | 1,585 | | | | Several wells for oil or gas. |
| Lorain [28] | Lorain | +600 | | | −50 | Mineral water; some gas. |
| Lone Star | Vinton | 1,100 | | | | Salt water; some oil. |
| McArthur | Vinton | 900–1,000 | | | | Fresh and salt waters. |
| McComb [29] | Hancock | 1,455 | | | | Gas well with salt water. |

[1] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 292–293.
[2] Record, ibid., p. 237.
[3] Analysis, U. S. Geol. Surv., 19th Ann. Rept., 1897–1898, part 1, p. 6614.
[4] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 237–238.
[5] Record, Pa. 2d. Geol. Surv., Ann. Report for 1886, part 2, p. 786.
[6] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 250–251.
[7] Analysis, ibid., p. 297.
[8] Ibid., p. 431.
[9] Record, ibid., pp. 304–306, 319.
[10] Record, Pa. 2d Geol. Surv., Ann. Report, 1886, part 2, pp. 784–785.
[11] Ohio Geol. Surv., Report, 1888, vol. 6, pp. 319–394.
[12] Ibid., p. 233.
[13] Ibid., p. 390.
[14] Record, ibid., p. 243.
[15] Ibid., p. 220.
[16] Ibid., pp. 380–381.
[17] Ibid., p. 213.
[18] Ibid., p. 219.
[19] Record, Ohio Geol. Surv. Report, 1886, vol. 6, p. 318.
[20] Ibid., pp. 382–388, 783.
[21] Ibid., pp. 295–296.
[22] Ibid., p. 242.
[23] Ibid, pp. 165–168.
[24] Ibid., pp. 213, 788–789.
[25] Ibid., p. 322.
[26] Ibid., pp. 318, 392–393.
[27] Ibid., pp. 280–281.
[28] Ibid., pp. 438–439.
[29] Ibid., p. 219.

## OHIO—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| McConnellsville | Morgan | +3,000 | | | | For oil or gas; unsuccessful. |
| Do | do | 1,330 | 7¼–5⅝ | | | Gas and salt water. |
| McCuneville[1] | Perry | 1,368 | | | | Several wells; bored for salt water; some found. |
| Macksburg[2] | Washington | 400–1,700 | | | | Large oil field about here. |
| Do.[3] | do | 2,100 | | | | Numerous successful wells; gas also found. |
| Do.[4] | do | 2,500 | | | | Oil and gas well. |
| Madison Township | Vinton | 1,017 | 10–5⅝ | | | Very little oil and salt water. |
| Magnetic Springs[5] | Union | 1,600 | | | | Salt well. |
| Malta[6] | Morgan | | | | | Large flow of gas from several wells for oil or salt. |
| Mansfield[7] | Richland | 2,005–2,415 | | | | Two borings for gas; unsuccessful. |
| Do.[8] | do | 3,594 | 5–4 | | | Unsuccessful. |
| Marietta[9] | Washington | 1,740–2,940 | | | | Oil well. |
| Marietta (4 miles below),[10] | do | 1,440 | | | | Gas well. |
| Marietta (near)[11] | do | 3,015 | | | | Much salt water at 1,790 feet. |
| Marion[12] | Marion | 1,790 | | | | Abandoned. |
| Martins Ferry[13] | Belmont | 2,300 | | | | |
| Marion Township[14] | Hancock | | | | | Gas well. |
| Marysville[15] | Union | 1,743 | | | | For gas or oil; found only water at 300 feet. |
| Massillon[16] | Stark | 655–1,820 | | | | Nothing but salt water. |
| Do.[17] | do | 671 | | | | Some oil; also salt water. |
| Do.[17] | do | 2,547 | | | | Gas at 655 feet, shut out by salt water. |
| Medina[17] | Medina | 917 | | | | Small flow of gas. |
| Miamisburg[18] | Montgomery | 800–1,200 | | | | Two gas wells. |
| Middleport | Meigs | 950–1,250 | 3 and 4 | Av. 25 | | Great number of salt-water wells in county. |
| Do | do | 1,500 | | | | Small amount of oil from 120–1,500 feet. |
| Middletown[19] | Butler | 1,060 | | | | Some gas and salt water. |
| Milan[20] | Erie | 2,000 | | | | For oil or gas; only salt water found. |
| Millersburg[21] | Holmes | 2,100 | | | | |
| Millersburg (four miles from). | do | 900–1,000 | | | | Gas and oil well. |
| Millers Station[22] | Guernsey | 430 | | | | Salt well. |
| Monroeville[23] | Huron | | | | | Small flow of gas only. |
| Mount Blanchard[24] | Hancock | | | | | Moderate flow of oil and gas. |
| Mount Orab | Brown | 800–1,200 | 5⅝ | | | Gas wells. |
| Mount Vernon[25] | Knox | 1,370, 1,707, 2,600 | | | | Three wells; unsuccessful. |
| Do.[26] | do | 3,200 | 4¼ | | —100 | Gas well; water at 1,725 and 1,765 feet. |
| Do | do | 2,135 | | | | Unsuccessful. |

[1] Ibid., pp. 388–389.
[2] Ohio Geol. Surv., Report, 1888, vol. 6, pp. 450–464.
[3] Ibid., p. 453.
[4] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 333–334.
[5] Record, Ohio Geol. Surv., Report, 1888, vol. 6, p. 269.
[6] Ibid., p. 389.
[7] Ibid., pp. 318, 365–366.
[8] Ibid., Report 1890, p. 245.
[9] Ibid., Report 1888, vol. 6, pp. 368–410.
[10] Record, W. Va. Geol. Surv., Reports, vol. 1, p. 288.
[11] Ibid., pp. 286–287.
[12] Record, Ohio Geol. Surv., Reports, 1888, vol. 6, pp. 201–202.
[13] Ibid., pp. 404–406.
[14] Ibid., p. 236.
[15] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 269–270.
[16] Ibid., pp. 320, 361.
[17] Ibid., p. 360.
[18] Ibid., pp 288–289.
[19] Ibid., pp. 294–295.
[20] Ibid., p. 346.
[21] Ibid., pp. 367–368.
[22] Ibid , pp. 654–655.
[23] Ibid., pp. 439–440.
[24] Ohio Geol. Surv., Report, 1888, vol. 6, p. 218.
[25] Record, ibid., pp. 217, 366–267.
[26] Ibid., Report for 1890, pp. 244–245.

## OHIO—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Napoleon [1] | Henry | 1,889 | | | +3 | For gas; salt water at 1,889 feet. |
| Nelsonville [2] | Athens | 570–950 | | | | Many salt wells; one small gas well. |
| Nevada [3] | Wyandot | 2,000 | | | | Nothing but salt water. |
| Newark [4] | Licking | 1,449–2,385 | | | | Several gas wells; small flows. |
| Newburg [5] | Cuyahoga | 3,000 | 5⅝ | | | Some gas; much salt water. |
| New Carlisle [6] | Clark | 1,060 | | | | For gas; unsuccessful. |
| New Lisbon [7] | Columbiana | 1,350–1,370 | | | | Gas wells. |
| New London [8] | Huron | 998–1,030 | | | | Three wells; nothing found except salt water. |
| New Vienna [9] | Clinton | 1,785 | | | | Salt water at 1,785 feet. |
| Niles [10] | Trumbull | 780–900 | | | | Two borings for gas; unsuccessful. |
| North Baltimore [11] | Wood | 1,104¼–1,295 | | | | Two gas and oil wells. |
| Do. [12] | do | 1,190 | | | | |
| North Bend | Hamilton | 1,350 | 5 | 200 | +30 | Good water. |
| Norwalk [13] | Huron | 2,304 | | | | |
| Do | do | 2,725 | 5⅛ | | | For oil or gas; unsuccessful. |
| Oak Harbor [14] | | 1,326–1,335 | | | | Three gas wells. |
| Oberlin | Ottawa | 700 | | | | For oil or gas; unsuccessful. |
| Osborn | Greene | 990 | | | | Unsuccessful. |
| Ottawa [15] | Putnam | 1,314–1,365 | | | | Two oil and gas wells; small product; much salt water. |
| Oxford [16] | Butler | 1,365 | | | | Shale gas and sulphur water only. |
| Painesville [17] | Lake | 700–1,390 | | | | Several gas wells. |
| Patterson (2 miles south of). [18] | Hardin | 1,330 | | | | Gas at 835 feet; large flow of water; unsuccessful. |
| Patterson (2 miles west of). [19] | do | 1,300 | | | | Large flow of gas; also large flow of water. |
| Perrysburg [20] | Wood | +1,600 | | | | Several gas wells. |
| Piketon | Pike | | | | | |
| Pike Township [21] | Clarke | 1,380 | | | | For gas; unsuccessful. |
| | | | | | | Do. |
| Piqua [22] | Miami | 1,673 | | | | |
| Plain City [23] | Madison | 1,530–2,000 | 8 | | +13 | Two wells; large flows of fine water from 350, 600, and 900 feet. |
| Plymouth [24] | Richmond | 742 | | | | |
| Do. [25] | do | 3,020 | | | | Salt and sulphur water at 850 feet. |
| Pomeroy | Meigs | 1,550 | | 20 | −500 | Salt well; some oil and gas. |
| Do | do | 1,100 | | | | Several salt wells; flowed originally. |
| Do. [26] | do | 767 | | | | |
| Pemberville | Wood | | | | | Unsuccessful. |
| Portage (vicinity) [27] | do | 1,177 | | | | Do. |

[1] Record, Ohio Geol. Surv., Report 1888, vol. 6, pp. 252–253.
[2] Ibid., p. 398.
[3] Ibid., p. 203.
[4] Ibid., pp. 317, 370–372.
[5] Record, Mich. Geol. Surv., 1881-1893, p. 73; Ohio Geol. Surv., Report, 1888, vol. 6, pp. 351–355; Ohio Geol. Surv., Report, vol. 1, pp. 352–355.
[6] Ohio Geol. Surv., Report, 1888, vol. 6, p. 280.
[7] Record, Ohio Geol. Surv., Report, vol. 6, 1888, p. 404.
[8] Ibid., pp. 440, 348–350.
[9] Ibid., pp. 296–297.
[10] Ibid., p. 401.
[11] Ibid., pp. 228–229; Pa. 2d Geol. Surv., Report for 1886, p. 786.
[12] Record, Ohio Geol. Surv., Report, 1888, vol. 6, p. 228.
[13] Ibid., pp. 440–441.
[14] Ibid., pp. 210–211.
[15] Ibid., p. 241.
[16] Ibid., p. 294.
[17] Ibid., pp. 427–428.
[18] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 221–222.
[19] Ibid., p. 222.
[20] Ibid., pp. 225, 788.
[21] Ibid., p. 280.
[22] Ibid., p. 273.
[23] Ibid., Report 1890, p. 246; U. S. Geol. Surv., 19th Annual Report, 1897–98, p. 663.
[24] Record, Ohio Geol. Surv., Report, 1888, vol. 6, p. 315.
[25] Ibid., pp. 302–303.
[26] Ibid., p. 397.
[27] Ohio Geol. Surv., Report 1888, vol. 6, pp. 164–165, 228.

## OHIO—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Portage (vicinity)[1] | Wood | 1,134 | | | | Unsuccessful. |
| Do.[1] | do | | | | | Large flow of gas. |
| Port Clinton[2] | Ottawa | +1,660 | | | | No product. |
| Portsmouth[3] | Scioto | 2,000 | | | | No product, but salt water at 1,000 feet. |
| Prospect[4] | Marion | 1,650 | | | | No product. |
| Quaker City[5] | Guernsey | 1,347 | | | | Gas well. |
| Do | do | 1,352 | | | | |
| Radcliff | Vinton | 700 or 800 | | | | Water and gas. |
| Rarden | Scioto | 1,710 | 10 | | −510 | Water. |
| Rawson[6] | Hancock | 1,337 | | | | For gas or oil; found salt water only. |
| Richland Furnace | Vinton | | | | | Gas well. |
| Ripley | Brown | | | | | No product. |
| Risingsun | Wood | | | | | Only small flow of oil. |
| Rockport[7] | Cuyahoga | 527–1,335 | | | | Two gas wells; small flows. |
| Rutland Township | Meigs | 1,560 | | 10–25 | −500 | Salt water only. |
| Sabina | Clinton | | | | | |
| St. Henry[8] | Mercer | 1,160–1,183 | | | | Gas well. |
| St. Marys[9] | Auglaize | 1,230 | | | | Salt water only. |
| Do.[10] | do | 1,132–1,225 | | | | Several oil wells. |
| Do.[10] | do | 1,092–1,138 | | | | Several gas wells; large flows. |
| St. Paris[11] | Champaign | +1,000 | | | | Two unsuccessful borings. |
| Salem[12] | Columbiana | 800–810+ | | | | Do. |
| Do | do | 2,930 | | | | Unproductive. |
| Salem Township[13] | Wyandot | 1,323 | | | | Small flow of oil. |
| Sandusky[14] | Erie | 2,260 | | | | Some oil, gas, and salt water. |
| Saline Township[15] | Jefferson | 1,105 | | | | Unproductive. |
| Sardis (SW of)[16] | Monroe | 1,815 | | | | Oil well. |
| Sciotoville | Scioto | 800 | | | | Unsuccessful. |
| Sevenmile | Butler | 1,220 | 8 | | −6 | Salt water and some gas. |
| Sheffield[17] | Lorain | 720 | | | | Bored for oil; some gas found; unsuccessful. |
| Shelby[18] | Richland | 1,480–1,796 | | | | Small flow of gas; 2 wells. |
| Sidney[19] | Shelby | 1,205–1,250 | | | | Several gas wells; much salt water at 1,445 feet. |
| Somerset[20] | Perry | 2,850 | | | −400 | Salt water at 2,850 feet. |
| South Kingsville[21] | Ashtabula | 1,200 | | | | Gas well; some oil. |
| South Olive | Noble | | | | | Unproductive. |
| South Toledo[22] | Lucas | +1,012 | | | | Do. |
| Springfield[23] | Clarke | 1,140–1,200 | | | | Several wells; unsuccessful. |
| Spring Valley[24] | Greene | 1,500 | | | | Unsuccessful. |
| Steubenville[25] | Jefferson | 1,290 | | | | Transient gas supply. |
| Do.[26] | do | 2,519 | | | | |
| Stuartsville Township.[27] | Hancock | 450 | | | | Oil wells. |
| Stryker | Williams | 860 | | | | Mineral water at 230 feet. |
| Sunbury[28] | Delaware | 2,530 | | | | |
| Tiffin[29] | Seneca | 1,467–1,494 | | | | Several wells; large flow of gas; some oil. |

[1] Ohio Geol. Surv., Report 1888, vol. 6, pp. 164–165, 228.
[2] Ibid., p. 212.
[3] Ibid., p. 395.
[4] Analysis, ibid., pp. 270–271.
[5] Record, ibid., pp. 324, 381–382.
[6] Ibid., p. 217.
[7] Record, Ohio Geol. Surv., Report 1888, vol. 6, pp. 432–434.
[8] Ibid., pp. 260–262.
[9] Ibid., pp. 255–258.
[10] Ibid., pp. 255–258.
[11] Ibid., pp. 276–277.
[12] Ibid., pp. 403–404, 452.
[13] Record, Pa. 2d Geol. Surv., Ann. Report for 1886, part 2, pp. 785–786.
[14] Record, Michigan Geol. Surv., 1881–1893, p. 83; Ohio Geol. Surv., Report, 1888, vol. 6, pp. 194–196.
[15] Record, Pa. 2d Geol. Surv., Report II, p. 282.
[16] Record, W. Va. Geol. Surv., Reports, vol. 1, pp. 356–357.
[17] Record, Ohio Geol. Surv., Report, 1888, vol. 6, p. 437.
[18] Ibid., pp. 316, 364–365.
[19] Ibid., pp. 264–266.
[20] Ibid., Report 1890, p. 247.
[21] Ibid., 1888, vol. 6, pp. 423–424.
[22] Ibid., p. 225.
[23] Ibid., pp. 278–280.
[24] Ibid., p. 291.
[25] Ibid., pp. 336–337.
[26] Record, Pa. 2d Geol. Surv., Ann. Report for 1886, part 2, p. 784.
[27] Ohio Geol. Surv., Report, 1890, pp. 219–220.
[28] Ibid., 1888, vol. 6, p. 283.
[29] Record, ibid., pp. 197–201.

## OHIO—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Tiffin (vicinity of)[1] | Seneca | 1,505–1,753 | | | | Several borings; all unsuccessful. |
| Tinney (south of) | Sandusky | 1,220 | 8–5⅝ | | —10 | Gas, oil, and salt water. |
| Tippecanoe[2] | Miami | 1,025 | | | | Small flow of gas. |
| Toledo[3] | Lucas | 1,425 | | | | Several borings for gas and oil; unsuccessful. |
| Tontogany (2½ miles southeast). | Wood | 1,425 | 8–5⅝ | | —30 | Some salt water, oil, and gas. |
| Toronto (4 miles west).[4] | Jefferson | 1,455 | | | | For oil; unsuccessful. |
| Troy[5] | Miami | 1,170 | | | | Some gas at 510, 680, and 880 feet. |
| Uniopolis | Auglaize | | | | | Very small flow of gas; abandoned. |
| Upper Sandusky[6] | Wyandot | 1,340–1,347½ | | | | Two borings for oil or gas; unsuccessful. |
| Urbana[7] | Champaign | 1,307–1,350 | | | | Very small showing of gas. |
| Vanlue[8] | Hancock | 1,294 | | | | Small flow of gas. |
| Vanwert[9] | Vanwert | 1,240 | | | | Very small flow of gas. |
| Vinton Township[10] | Vinton | 490–1,057 | 10–5⅝ | | | Gas, oil, and salt water. |
| Wakeman | Huron | 3,000 | | | | For oil; found salt water only at 1,950 feet. |
| Wapakoneta[11] | Auglaize | 1,600 | | | | For oil or gas; salt water only. |
| Washington[12] | Fayette | 1,850 | | | | For gas or oil; found salt water only. |
| Waterville[13] | Lucas | 1,153 | | | | Small flow of gas. |
| Wauseon[14] | Fulton | +2,158 | | | | Oil at 2,158 feet. |
| Wellington[15] | Lorain | 1,030–1,050 | | | | Several small gas wells. |
| Westerville[16] | Franklin | +2,300 | | | | |
| Westminster[17] | Allen | 1,400 | | | | For oil or gas; unsuccessful. |
| West Newton[18] | do | 1,440 | | | | |
| Weston[19] | Wood | 1,575 | | | | Oil, gas, and sulphur water. |
| Whartonsburg[20] | | 1,427 | | | | For oil or gas; unsuccessful. |
| Williamsburg | Clermont | 660 | 6 | | | Small flow of gas. |
| Do | do | 660 | 6 | | | Unsuccessful. |
| Willoughby[21] | Lake | | | | | Several small gas wells. |
| Wilmington[22] | | | | | | |
| Woodville[23] | Sandusky | 1,460 | | | | For oil or gas; only salt water found. |
| Wooster[24] | Wayne | 1,805–2,000 | | | | Three borings for oil or gas; unsuccessful. |
| Xenia[25] | Greene | 1,200 | | | | For oil or gas; unsuccessful. |
| Youngstown[26] | Mahoning | 2,480 | | | | For gas or oil; unsuccessful. |
| Zanesville[27] | Muskingum | 1,098–2,019 | | | | Three wells; some oil. |

[1] Record, Ohio Geol. Surv., Report 1890, pp. 784–785.
[2] Ohio Geol. Surv., Report, 1888, vol. 6, p. 274.
[3] Record, ibid., pp. 208–209; Michigan Geol. Surv., 1881–1893, p. 85.
[4] Pennsylvania 2d Geol. Surv., Report I⁵, p. 236.
[5] Ohio Geol. Surv. Report, 1888, vol. 6, p. 274.
[6] Ibid., p. 202.
[7] Record, ibid., p. 275.
[8] Ibid., p. 219.
[9] Ibid., pp., 239–240.
[10] Ibid., p. 394.
[11] Ibid., p. 254.
[12] Record, Ohio Geol. Surv., Report 1888, vol. 6, p. 291.
[13] Ibid., p. 225.
[14] Ibid., pp. 246–247.
[15] Ibid., pp. 348–349.
[16] Ibid., p. 283.
[17] Ibid., p. 220.
[18] Ibid., p. 220.
[19] Ibid., pp. 223–224.
[20] Ibid., p. 203.
[21] Ibid., p. 428.
[22] Ibid., pp. 296–297.
[23] Ibid., pp. 213–214.
[24] Record, Ohio Geol. Surv., Report, 1888, vol. 6, pp. 361–363.
[25] Ibid., pp. 289–290.
[26] Ibid., pp. 321, 402–403.
[27] Ibid., pp. 372–375.

## PRINCIPAL PUBLICATIONS RELATING TO DEEP BORINGS IN OHIO.

Report of the Geological Survey of Ohio, Volume VI, Economic Geology, 831 pages, plates, Columbus, 1888.

First Annual Report of the Geological Survey of Ohio (third organization), by Edward Orton, State geologist, 323 pages, plates, Columbus, 1890.

Water Resources of Indiana and Ohio, by Frank Leverett, U. S. Geological Survey, Eighteenth Annual Report, 1896–97, part 4, pp. 423–559, plates, Washington, 1897.

The Rock Waters of Ohio, by Edward Orton, U. S. Geological Survey, Nineteenth Annual Report, 1897–98, part 4, pp. 633–717, plates, Washington, 1899.

## OKLAHOMA.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Fort Reno | Canadian | 1,200 | | | | |
| Oklahoma City | | 780 | | | | For oil or gas; unsuccessful. |
| Pawhuska | Osage | 1,700 | | | | Oil well. |
| Mangum | Greer | 500 | | | | For oil; unsuccessful. |
| Do | do | 400 | | | | Abandoned. |

## OREGON.

| | | | | | | |
|---|---|---|---|---|---|---|
| Baker City | Baker | 400 | | Many. | | |
| Blalock | Gilliam | 400 | | | | Unsuccessful. |
| Bliss Water Station | | 418 | 4–3½ | 42 | +10 | Water tepid. |
| Burns | Harney | 750 | 8 | | | Abandoned. Only a very small flow at 300 feet. |
| Cleft Water Station | | 425 | 3 | +28 | +10 | Water tepid. |
| Fort Stevens | Clatsop | 400 | | | | Unsuccessful. |
| Do | do | 800 | | | | Do. |
| Heppner | Morrow | 650 | | | | |
| Portland | Multnomah | 1,850 | | | | |
| The Dalles | Wasco | 1,020 | 4½–1½ | | | Bored for oil; no water below 350 feet. |

## PENNSYLVANIA.

| | | | | | | |
|---|---|---|---|---|---|---|
| Abbot Township | Potter | 2,100 | | | | Oil boring; unsuccessful. |
| Do[1] | do | 2,029 | | | | Small gas well. |
| Allegheny | Allegheny | 1,760 | | | | Salt well. |
| Allegheny Township.[2] | Butler | 1,055–1,408 | | | | Oil and gas wells. |
| Do.[3] | Venango | 850 | | | | For oil; unproductive. |
| Do.[4] | Westmoreland. | 1,250–2,847 | | | | For oil or gas; mostly unproductive. |
| Allen Township[5] | Washington | 2,060 | | | | Gas well. |
| Altoona | Blair | 2,006 | | | | Abandoned. |
| Amity Township | Erie | 500–630 | | | | Several oil and gas wells. |
| Amwell Township[6] | Washington | 2,385 | | | | For oil or gas; unproductive. |
| Ashland (vicinity) | Schuylkill | 1,830 | 2 | 139 | Flows. | Temp. 54°. |
| Ashland Township[7] | Clarion | 1,128 | | | | For oil or gas; unproductive. |

[1] Records, Pa. 2d Geol. Surv., Ann. Rept. for 1885, pp. 85–86.
[2] Ibid., Vol. II., pp. 238–240.
[3] Ibid., Vol. I[4], pp. 58–59.
[4] Ibid., Vol. I[5], pp. 211–215; Vol. II, pp. 277–278.
[5] Ibid., pp. 301–302
[6] Ibid., pp. 307–308.
[7] Ibid., p. 230.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Baden (1 mile north)[1] | Beaver | 1,366 | | | | For oil or gas. |
| Barnet Township[2] | Forest | 2,428 | | | | For oil or gas; unsuccessful. |
| Beaver Falls[3] | Beaver | 2,330 | | | | Do. |
| Beaver Falls (2 miles above).[4] | do | 982 | | | | Gas well. |
| Beaver Township[5] | Clarion | 1,001–1,200 | | | | For oil or gas. |
| Belle Vernon[6] | Fayette | 2,005 | | | | Small gas well. |
| Benezette[7] | Elk | 721 | 3 | | | For oil or gas; abandoned. |
| Black Ash[8] | Crawford | 777 | | | | Do. |
| Blacklick (vicinity)[9] | Indiana | 1,728 | | | | Do. |
| Black's Siding[10] | Venango | 1,650 | | | | For oil or gas; unproductive. |
| Blacksville[11] | Greene | 500? | | | | For oil. |
| Blairsville[12] | Westmoreland. | 2,060 | | | | For oil or gas; abandoned. |
| Bloomfield Township.[13] | Crawford | 590–1,000 | | | | Several oil wells. |
| Bradford[14] | McKean | 1,085 | | | | For oil. |
| Bradford (vicinity)[15] | do | 1,010–1,719 | | | | Numerous oil and gas wells. |
| Brady Township[16] | Butler | 1,458–1,596 | | | | For oil. |
| Bradys Bend | Armstrong | +1,089 | | | | Oil and gas well. |
| Bradys Bend Township.[17] | do | 1,100–1,260 | | | | For oil. |
| Bridgeville (vicinity).[18] | Allegheny | 2,250 | | | | |
| Bridgewater (near) | Beaver | | | | | For gas; small supply. |
| Brookston | Forest | 2,200 | | | | For oil or gas; unsuccessful. |
| Brookville[19] | Jefferson | 3,100 | | | | For oil or gas; unproductive. |
| Do.[20] | do | 1,700 | | | | Gas well. |
| Brookville Borough[21] | do | 2,430 | | | | Do. |
| Brownsville[22] | Fayette | +2,106 | | | | Do. |
| Brush Run[23] | Clarion | 1,047–1,636 | | | | Oil and gas wells. |
| Brushton Station | Allegheny | 1,615 | | | | Unsuccessful. |
| Bryn Mawr | Montgomery | 550 | 8 | 83 | −310 | |
| Do | do | 600 | 6 | 120 | | |
| Burrell Township[24] | Westmoreland. | 2,500 | | | | |
| Do.[25] | do | 1,850 | | | | For oil or gas; abandoned. |
| Butler[26] | Butler | 3,055 | | | | Do. |
| Do | do | 1,500–1,950 | | | | Several oil and gas wells. |
| Butler (3 miles south) | do | 3,008 | 5 | | | |
| Do.[27] | do | 1,500–1,795 | | | | Gas and oil wells. |
| Butler Township[28] | do | 1,524–1,637 | | | | For oil. |
| Cambria Mill[29] | Cambria | 653(?) | | | | Gas well. |
| Cameron Station (½ mile northeast).[30] | Cameron | 971 | | | | For oil. |
| Cannonsburg (vicinity).[31] | Washington | 1,763–2,502 | | | | Numerous oil and gas wells; some unproductive. |
| Canton Township[32] | do | 2,727 | | | | For oil or gas. |
| Carlisle (1½ miles SE) | Cumberland | 864 | 5–4½ | | | |
| Carlisle (5 miles west). | do | 420 | 5–4½ | | | |

[1] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], p. 232.
[2] Ibid., p. 154.
[3] Ibid., Vol. III, pp. 401–404.
[4] Ibid., Vol. I[4], pp. 142–143.
[5] Ibid., Vol. II, pp. 228–229.
[6] Ibid., Ann. Rept., 1886, part 2, pp. 778–779.
[7] Ibid., Vol. I[4], pp. 133–134; Vol. R R, p. 248.
[8] Ibid., Vol. I[5], p. 186.
[9] Ibid., p. 168.
[10] Ibid., pp. 184–185.
[11] Ibid., Vol. K, pp. 108–109.
[12] Ibid., Vol. I[5], pp. 224–225.
[13] Records, Pa. 2d Geol. Surv., Reports, Vol. Q, pp. 224–226; Vol. II, pp. 273–274; Vol. I[4], p. 119.
[14] Ibid., Vol. I[4], pp. 97–103.
[15] Ibid., Vol. I[4], p. 89; Vol. R, pp. 287–290.
[16] Ibid., Vol. G[4], pp. 150–151; Vol. III, pp. 418–419.
[17] Ibid., Vol. II, pp. 258–259.
[18] Ibid., Vol. I[5], p. 272.
[19] Ibid., pp. 163–164.
[20] Ibid., Vol. I[4], p. 139.
[21] Ibid., Ann. Rept., 1886, part 2, p. 778.
[22] Ibid., Vol. I[5], pp. 317–318.
[23] Ibid., pp. 235–236.
[24] Ibid., pp. 212–213.
[25] Ibid., Ann. Rept. for 1886, part 2, pp. 686–687.
[26] Ibid., Vol. I[5], pp. 193–194.
[27] Ibid., pp. 209–210.
[28] Ibid., Ann. Rept. for 1886, part 2, pp. 711–718.
[29] Ibid., Vol. HH, pp. 176–180.
[30] Ibid., Vol. RR, part 2, p. 23; vol. G[4], p. 138.
[31] Ibid., Vol. I[5], pp. 281–297.
[32] Ibid., pp. 279–280.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Carmichaels (vicinity).[1] | Greene | 2,432 | | | | For oil or gas. |
| Carpenters Station (near).[2] | Westmoreland. | 1,541 | | | | Do. |
| Chambersburg | Franklin | +400 | | | | |
| Chambersburg (2 miles west). | do | 600 | 6 | | −17 | Water at 420 feet. |
| Cherry Grove Township.[3] | Warren | 1,548–2,004 | | | | Several oil and gas wells; some unproductive. |
| Cherry Tree Borough.[4] | Cambria | 653 | | | | Gas well. |
| Church Run[5] | Crawford | 415–700 | | | | Several oil wells. |
| Clarion[6] | Clarion | 1,238–1,367 | | | | Several oil wells; one unproductive. |
| Clearfield (2 miles southwest).[7] | Clearfield | 2,900 | | | | For oil or gas; unproductive. |
| Clearfield Township).[8] | Butler | 1,558–1,925 | | | | Several oil and gas wells; one unsuccessful. |
| Clinton Township[9] | Venango | 836–1,266 | | | | Several oil wells; mainly productive. |
| Cooksburg[10] | Forest | 2,100–2,726 | | | | For oil or gas, unsuccessful. |
| Cooksburg (vicinity).[11] | Clarion | 843–2,050 | | | | For oil or gas, one unproductive. |
| Collier Township[12] | Allegheny | 2,400 | | | | Gas well. |
| Concord Township[13] | Crawford | 845 | | | | Oil and gas well. |
| Conneautville (1 mile below).[14] | do | 750 | | | | For oil or gas. |
| Cornplanter Township.[15] | Venango | 451–924 | | | | Do. |
| Corry[16] | Erie | 2,340 | | | | Gas and oil well. |
| Corydon (1 mile from).[17] | McKean | 1,532–1,601 | | | | Gas wells. |
| Corydon Township | Warren | 720 | | | | For oil. |
| Coudersport[18] | Potter | 2,100 | | | | Small gas well. |
| Cranberry Township.[19] | Venango | 600–1,506 | | | | Numerous oil and gas wells, mainly productive. |
| Crawford Township | Clinton | 458 | | | | Coal prospect, unsuccessful. |
| Crescent Township[20] | Allegheny | 2,106 | | | | For oil or gas, unproductive. |
| Cresson[21] | Cambria | 677 | | | | For oil. |
| Criswell (vicinity)[22] | Armstrong | 1,394–1,618 | | | | Oil and gas wells. |
| Darlington[23] | Beaver | 2,444 | | | | For oil or gas, unproductive. |
| Degolia (near)[24] | McKean | 1,404 | | | | For oil or gas. |
| Delano | Schuylkill | 515 | 2 | | | Coal prospect. |
| Demmler | Allegheny | 1,600 | | | | For oil or gas, abandoned. |
| Dennis Run[25] | Warren | 426–632 | | | | Several oil and gas wells. |
| Dicksonburg | Crawford | 680? | | | | Oil well. |
| Dixmont[26] | Allegheny | 1,802 | | | | Oil and gas well. |
| Donegal Township[27] | Butler | 1,565–1,740 | | | | Many oil and gas wells. |
| Doylestown | Bucks | 750 | | | | |
| Dubois Station[28] | Clearfield | 3,020 | | | | For oil or gas, unproductive. |
| Dunkard Township | Greene | | | | | Several oil wells. |

[1] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 315–316.
[2] Ibid., Ann. Rept. for 1886, part 2, pp. 725–726.
[3] Ibid., Vol. I[4], pp. 26–27, 375–376.
[4] Ibid., p. 146.
[5] Ibid., Vol. II, pp. 66–69.
[6] Ibid., Vol. I[5], pp. 157–159; Vol. III, pp. 413–414.
[7] Ibid., Vol. I[5], pp. 166–167.
[8] Ibid., Ann. Rept. for 1886, part 2, p. 178; Vol. II, pp. 266–268.
[9] Ibid., Vol. II, pp. 219–222.
[10] Records, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 159–161.
[11] Ibid., Vol. I[4], pp. 140–141.
[12] Ibid., Vol. I[5], pp. 261–262.
[13] Ibid., Vol. Q[4], p. 212.
[14] Ibid., Vol. Q[4], pp. 216, 234–236.
[15] Ibid., Vol. I[4], pp. 59–61.
[16] Ibid., Vol. I[4], p. 228.
[17] Ibid., Vol. I[4], pp. 259–261.
[18] Ibid., Ann. Rept., 1886, part 2, pp. 775–776.
[19] Ibid., Vol. II, pp. 203–207, 210–214; Vol. I[4], pp. 62–63.
[20] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 264–265.
[21] Ibid., Vol. HH, p. 30.
[22] Ibid., Vol. II, pp. 253–258.
[23] Ibid., Ann. Rept., 1886, part 2, pp. 780–781.
[24] Ibid., Vol. I[4], p. 90.
[25] Record, Am. Phil. Soc., Proc., vol. 16, pp. 367–370.
[26] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 257–258.
[27] Ibid., pp. 199–203; Vol. II, pp. 263–265.
[28] Ibid., Vol. I[5], pp. 165–166.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Eagle Station | Delaware | 1,700 | | Few. | | |
| East Bethlehem Township.[1] | Washington | 604 | | | | Salt well, abandoned. |
| East Brookside | Schuylkill | 585 | 8 | | | Oil well. |
| East Deer Township[2] | Allegheny | 1,194–1,243 | | | | Several gas wells, one abandoned. |
| Easton | Northampton. | 500 | | 105 | −43 | |
| East Pike Run Township.[3] | Washington | 1,950 | | | | Gas well. |
| Ebensburg | Cambria | 1,000 | 5¾ | Many. | No flow. | |
| Edenburg[4] | Clarion | 1,268 | | | | Good oil well. |
| Edenburg (1 mile southeast).[5] | | 1,046 | | | | |
| Eldred Township[6] | Warren | 415–481 | | | | Oil and gas wells. |
| Elkland | Tioga | | | | | For oil or gas. |
| Elklick | Somerset | +1,500 | | | | |
| Do | do | 2,900 | | | | For oil. |
| Elk Township[7] | Clarion | 977–1,450 | | | | Several oil or gas wells, some unproductive. |
| Do.[8] | Warren | 1,500 | | | | For oil, abandoned. |
| Elrod | Allegheny | ±1,500 | | | | For oil or gas, abandoned. |
| Do.[9] | do | 1,486 | | | Flows | For oil or gas, unsuccessful. |
| Elrod (1 mile north) | do | 1,510 | | | | For gas, abandoned. |
| Elrod Township[10] | Warren | 588–914 | | | | For oil or gas. |
| Emelton (vicinity)[11] | Venango | 720–1,000 | | | | Numerous oil wells, mainly productive. |
| Emporium[12] | Cameron | 1,410 | | | | For oil. |
| Do | do | +400 | | | | |
| Emporium (4 miles northwest).[13] | do | 1,607 | | | | For oil or gas, unproductive. |
| Enterprise[14] | Warren | 474–487 | | | | Several oil wells. |
| Enterprise (vicinity).[15] | do | 462–800 | | | | Do. |
| Erie[16] | Erie | 4,460 | | | | For oil or gas, abandoned. |
| Do.[17] | do | 1,250–1,418 | | | | Gas wells. |
| Do | do | 470–800 | | | | Numerous gas and oil wells. |
| Fairoaks[18] | Beaver | 1,645 | | | | Small oil well. |
| Fairoaks (vicinity)[19] | do | 1,606 | | | | Gas well. |
| Falls Creek Station (near).[20] | Jefferson | 3,040 | | | | Do. |
| Fairview Township[21] | Butler | 1,421–1,694 | | | | Numerous oil and gas wells. |
| Do.[22] | Erie | 700–1,000 | | | | Several gas wells. |
| Farrentown[23] | Armstrong | 1,140–1,166 | | | | Several oil and gas wells. |
| Fawn Township | | 1,147–1,550 | | | | Several good gas wells. |
| Forest City | Wayne | | | | | Coal prospect. |
| Foresthill | Union | 480 | | | Flows. | Sulphur water. |
| Fort Hunter | Dauphin | 2,675 | 6 | | | Abandoned. |
| Forward Township[24] | Butler | 1,553–1,683 | | | | Oil and gas wells. |
| Foxburg[25] | Armstrong | 805–944 | | | | Small oil wells. |
| Franklin (½ mile northeast).[26] | Venango | 490 | | | Flows. | Good oil well. |
| Franklin (8 miles south).[27] | do | 3,880 | | | | For oil or gas, unproductive. |
| Franklin Township[28] | Washington | 2,608 | | | | For oil or gas, abandoned. |

[1] Record, Pa. 2d Geol. Surv., Reports, Vol. K, pp. 178–179.
[2] Ibid., Vol. I[5], pp. 237–238.
[3] Ibid., pp. 302–303.
[4] Ibid., Vol. I[4], pp. 139–140.
[5] Ibid., Vol. II, p. 229.
[6] Ibid., Vol. I[4], pp. 52–53.
[7] Ibid., Vol. II, pp. 230–232; Vol. III, pp, 415–416.
[8] Ibid., Vol. I[4], p. 30.
[9] Record, Pa. 2d Geol. Surv., Report for 1886, part 2, pp. 667–668.
[10] Ibid., Vol. II, pp. 195–196.
[11] Ibid., pp. 222–225.
[12] Ibid., Vol. G[4], p. 140.
[13] Ibid., p. 141.
[14] Ibid., Vol. II, pp. 65–66.
[15] Record, Am. Phil. Soc., Proc., vol. 16, pp. 367–369.
[16] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 187–192.
[17] Ibid., Vol. I[4], pp. 122, 290.
[18] Ibid., Vol. I[5], pp. 232–233.
[19] Ibid., p. 233.
[20] Ibid., p. 164.
[21] Records, Pa. 2d Geol. Surv., Reports, Vol. II, pp. 246–262.
[22] Ibid., Vol. Q[4], pp. 262–263.
[23] Ibid., Vol. II, pp. 242–243.
[24] Ibid., Vol. I[5], p. 208.
[25] Ibid., Vol. II, pp. 237–238.
[26] Ibid., Vol. I[4], p. 65.
[27] Ibid., Vol. I[5], pp. 185–186.
[28] Ibid., p. 279.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Franklin Township[1] | Allegheny | 1,905–2,150 | | | | Several oil or gas wells. |
| Do.[2] | do | 1,492–±1,500 | | | | For oil or gas. |
| Gaines[3] | Tioga | 1,345 | | | | For oil or gas, abandoned. |
| Gallagher Township | Clinton | 3,525 | | | | |
| Georgetown[4] | Beaver | 1,430 | | | | For oil or gas, abandoned. |
| German Township[5] | Fayette | 1,196 | | | | Gas well. |
| Gerties Run[6] | Allegheny | ±1,600 | | | | For oil or gas, abandoned. |
| Gibsonia (½ mile west).[7] | do | 2,017 | | | | For oil or gas. |
| Girard Township[8] | Erie | 980 | | | | For oil, unsuccessful. |
| Good Intent (2½ miles southwest).[9] | Washington | 2,720 | | | | For oil or gas, unproductive. |
| Great Belt City (vicinity).[10] | Butler | 1,875 | | | | |
| Greece City (3 miles west).[11] | do | 1,500 | | | | Do. |
| Greece City (vicinity).[12] | do | 1,423–1,530 | | | | Several oil and gas wells. |
| Greene Township | Greene | | | | | Oil and gas well. |
| Greenfield | Erie | 780 | | | | Large gas well. |
| Greensboro[13] | Greene | 668 | | | | Oil well. |
| Greensburg (4 miles southwest).[14] | do | 769 | | | | Do |
| Hamilton Township[15] | McKean | 2,011 | | | | Oil well. |
| Hamlin Township[16] | do | 2,315–2,400 | | | | Several oil wells; some unproductive. |
| Do.[17] | do | 1,613–1,768 | | | | Several oil wells; one abandoned. |
| Hammersley Fork | Clinton | —1,800 | | | | For oil. |
| Hanover Township[18] | Beaver | 1,644 | | | | |
| Harrisburg | Dauphin | 2,800 | 6 | | | For gas. Abandoned. |
| Do | do | +400 | | | | Two wells. |
| Harrison Township[19] | Allegheny | 1,109–1,200 | | | | Several gas wells. |
| Do.[20] | Potter | 1,995 | | | | |
| Harrisville (vicinity).[21] | Butler | 880–1,367 | | | | For gas or oil. |
| Hazleton | Luzerne | 482–690 | 2 | | | Coal prospects. |
| Hebron[22] | Potter | 1,286 | | | | For oil. |
| Hempfield Township.[23] | Westmoreland. | 1,255 | | | | Gas well. |
| Herman[24] | Butler | 1,784–1,901 | | | | Several oil and gas wells. |
| Hickory | Washington | | | | | Gas well. |
| Hickory (2½ miles southwest).[25] | do | 2,245 | | | | Large gas well. |
| Hickory (2 miles southeast).[26] | do | 2,205 | | | | Large flow of gas. |
| Hickory (vicinity)[27] | do | 700–1,151 | | | | Several large gas wells. |
| Highland Township[28] | Elk | 2,095–2,448 | | | | Many oil and gas wells; some abandoned. |
| Hollenback | Bradford | 600 | | | | |
| Homestead (vicinity).[29] | Allegheny | 1,744 | | | | For oil or gas. |
| Homewood Station | Beaver | 1,500(?) | | | | Do. |

[1] Records, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 251–254.
[2] Ibid., Vol. I[4], p. 144.
[3] Ibid., Vol. I[5], pp. 147–148.
[4] Ibid., p. 233.
[5] Ibid., pp. 321–322.
[6] Ibid., Ann. Rept. for 1886, part 2, pp. 742–744.
[7] Ibid., Vol. I[5], p. 242.
[8] Ibid., Vol. Q[4], p. 259.
[9] Ibid., Vol. I[5], pp. 305–306.
[10] Ibid., Vol. I[4], p. 138.
[11] Ibid., p. 141.
[12] Ibid., Vol. II, pp. 247–248.
[13] Ibid., Ann. Rept. for 1886, part 2, p. 774.
[14] Ibid., Vol. I[4], p. 145.
[15] Record Pa. 2d Geol. Surv., Reports, Vol. R, pp. 266–267.
[16] Ibid., Vol. I[5], pp. 151–152.
[17] Ibid., Vol. R, pp. 179–182; Vol. I[4], pp. 111–113.
[18] Ibid., Vol. I[5], pp. 235–236.
[19] Ibid., Ann. Rept. for 1886, part 2, pp. 684–686.
[20] Ibid., Vol. G[3], pp. 80–81.
[21] Ibid., Ann. Rept. for 1886, part 2, pp. 718–719.
[22] Ibid., Vol. G[3], p. 79.
[23] Ibid., Vol. I[5], p. 223.
[24] Ibid., pp. 195–197.
[25] Ibid., Ann. Rept. for 1886, part 2, pp. 754–755.
[26] Ibid., pp. 769–772.
[27] Ibid., pp. 758–760; Am. Phil. Soc., Proc., vol. 16, p. 489.
[28] Ibid., Pa. 2d Geol. Surv., Ann. Rept. for 1886, part 2, pp. 707–709; Vol. I[5], p. 155.
[29] Ibid., pp. 744–746.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Homewood Station (vicinity).[1] | Beaver | 925 | | | | For oil or gas. |
| Honesdale (5 miles from). | Wayne | 2,500 | | | | Two oil wells; abandoned. |
| Honesdale (6 miles north).[2] | do | 1,505 | | | | For oil. |
| Hopewell Township[3] | Beaver | 1,490–1,572 | | | | |
| Horatio | Jefferson | 543 | | | −10 | |
| Howe Township[4] | Forest | 1,475–1,985 | | | | Several oil wells. |
| Do.(?)[5] | do | 2,233 | | | | Gas well. |
| Hulton Station (near) | Allegheny | | | | | For gas; unsuccessful. |
| Humes Station (near).[6] | Clinton | 1,821 | | | | For oil or gas; unproductive. |
| Huntingdon | Huntingdon | 400 | | | | Several wells. |
| Hyner Station (near)[7] | do | 1,187 | | | | For oil. |
| Independence Township.[8] | Beaver | +1,223 | | | | For oil or gas; unproductive. |
| Irwin | Westmoreland. | 4,380 | | | | |
| Do.[9] | do | 2,340 | | | | Do. |
| Jacks Run[10] | Allegheny | 1,724 | | Many. | Flows. | Fresh water at 1,600 feet. |
| Jackson Township[11] | Venango | 688 | | | | Oil well. |
| Jamestown[12] | Mercer | 1,063 | | | | Oil and gas well. |
| Jefferson[13] | Greene | 2,658 | | | | |
| Jefferson Center[14] | Butler | 1,732 | | | | Oil well. |
| Jefferson Township[15] | Allegheny | 2,014 | | | | Gas well. |
| Jenks Township[16] | Forest | 400–1,003 | | | | Several gas or oil wells; unproductive. |
| Do.[17] | do | 1,310–2,505 | | | | Several wells; mainly unproductive. |
| Jermyn | Lackawanna. | 780 | 6 | 25 | | |
| Johnsonburg Station.[18] | Elk | 2,510 | | | | Large gas well. |
| Johnstown[19] | Cambria | 2,856 | | | | For oil or gas; unproductive. |
| Johnstown (4 miles west).[20] | do | 2,500 | | | | Do. |
| Jones Township[21] | Elk | 1,335–1,756 | | | | Two oil wells; one abandoned. |
| Karns City (½ mile south).[22] | Butler | 1,454 | | | | |
| Kingsley Township[23] | Forest | 2,200 | | | | For oil or gas; unproductive. |
| Kinzua Township[24] | Warren | 1,048–2,285 | | | | Several oil wells; mainly unproductive. |
| Knox Township[25] | Jefferson | 1,608–2,000 | | | | Moderate gas wells. |
| Lafayette Township.[26] | McKean | 2,111–2,490 | | | | Several oil and gas wells. |
| Lardens Mills[27] | Butler | 1,140 | | | | Gas well. |
| Latrobe[28] | Westmoreland. | 1,980 | | | | For oil or gas. |
| Lawrenceburg (south of).[29] | Armstrong | 1,017 | | | | |
| Layton Station[30] | Fayette | 2,100 | | | | For oil or gas; unproductive. |
| Leboeuf | Erie | 780 | | | | Oil and gas well. |
| Limestone (3 miles south). | McKean | 1,130 | | | | Oil well. |

[1] Record, Pa. 2d Geol. Surv., Reports, Vol. QQ, pp. 250–251.
[2] Ibid., Vol. G[6], pp. 91–93.
[3] Ibid., Vol. I[5], pp. 234–235.
[4] Ibid., Vol. I[4], pp. 79–81; Ann. Rept. for 1886, part 2, p. 700.
[5] Ibid., Ann. Rept. for 1886, part 2, pp. 700–701.
[6] Ibid., Vol. I[5], p. 197.
[7] Ibid., Vol. G[4], pp. 131–134.
[8] Ibid., Ann. Rept. for 1886, part 2, pp. 779–780.
[9] Ibid., Vol. I[5], pp. 221–222.
[10] Ibid., Ann. Rept. for 1886, part 2, pp. 748–749.
[11] Ibid., Vol. II, p. 201.
[12] Ibid., pp. 274–275.
[13] Ibid., Vol. I[5], pp. 314–315.
[14] Ibid., Ann. Rept. for 1886, part 2, pp. 716–717.
[15] Ibid., pp. 752–753.
[16] Ibid., Reports, Vol. I[4], pp. 81–83.
[17] Ibid., pp. 83–86; Ann. Rept. for 1886, part 2, pp. 702–705.
[18] Ibid., Ann. Rept. for 1886, part 2, pp. 710–711.
[19] Ibid., Reports, Vol. I[6], pp. 169–170.
[20] Ibid., pp. 170–171.
[21] Ibid., Vol. I[4], pp. 127–128.
[22] Ibid., Vol. II, pp. 262–263.
[23] Ibid., Ann. Rept. for 1886, part 2, pp. 703–704.
[24] Ibid., Vol. I[4], pp. 27–29.
[25] Ibid., Vol. I[5], pp. 162–163.
[26] Records, Pa. 2d Geol. Surv., Repts., Vol. I[5], pp. 152–53.
[27] Ibid., Vol. II., pp. 270–271.
[28] Ibid., Vol. I[5], pp. 223–224.
[29] Ibid., Vol. II., p. 243.
[30] Ibid., Vol. I[5], pp. 318–319.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Littlestown | Adams | 500 | | | | |
| Little Washington | Washington | | | | | Two gas wells. |
| Lockhaven | Clinton | 3,525 | 6¼ | | | For oil or gas; unsuccessful. |
| Lottsville [1] | Warren | 960–1,515 | | | | Two oil or gas wells; abandoned. |
| Lovelton (near) | Wyoming | | | | | Deep well. |
| Mahanoy City (near) | Schuylkill | 1,130 | 2 | Many. | Flows. | Temp. 51°. |
| Manchester [2] | York | 1,520 | | | | For oil or gas. |
| Marienville (near) [3] | Forest | 1,305 | | | | |
| Marion Township [4] | Butler | 765 | | | | |
| Mars Station (near) [5] | do | 1,900 | | | | For oil or gas; unproductive. |
| Marshall Township [6] | Allegheny | 1,830 | | | | |
| Masontown [7] | Fayette | 2,525 | | | | Gas well. |
| McCandless Township. [8] | Allegheny | 2,110 | | | | For oil or gas. |
| McDonald [9] | Washington | 2,342 | | | | Gas well. |
| McKeesport Borough | Allegheny | 1,640 | | | | Do. |
| Meadville [10] | Crawford | 900 | | | | Several oil wells in this vicinity. |
| Mercer (near) [11] | Mercer | 1,702 | | | | Gas well. |
| Miam Hollow [12] | McKean | 1,390 | | | | |
| Middlesex (near) [13] | Mercer | 2,030 | | | | For oil or gas; unproductive. |
| Middlesex, West (1 mile south). [14] | do | 3,484 | | | | Do. |
| Middlesex Township. [15] | Butler | 1,785–1,930 | | | | Do. Several oil and gas wells. |
| Mill Creek Township. [16] | Clarion | 2,323 | | | | For oil or gas; unproductive. |
| Millvale [17] | Allegheny | 1,655 | | | | For oil or gas; unsuccessful. |
| Millville [18] | Clarion | 2,280 | | | | Oil and gas well. |
| Monongahela [19] | Washington | 2,152–2,218 | | | | Gas wells. |
| Moon Township [20] | Allegheny | 1,800–2,337 | | | | Several oil and gas wells. |
| Do. [21] | Beaver | 1,257–1,680 | | | | Several oil or gas wells. |
| Monroeville (1 mile southeast). [22] | Allegheny | 1,798 | | Many. | Flows. | Fresh water. |
| Montana | Columbia | 717–722 | 2 | | | |
| Mount Carmel | Northumberland. | 900 | 2 | | | |
| Mount Morris (near). [23] | Greene | 1,772 | | | | Oil well. |
| Murrysville [24] | Westmoreland. | 1,337–1,440 | | | | Numerous oil and gas wells. |
| Murrysville (vicinity). [25] | do | 1,312–1,465 | | | | Large oil field. |
| Neilltown (vicinity) [26] | Forest | 780–995 | | | | Numerous oil and gas wells; some unproductive. |
| Neville Island [27] | Allegheny | 1,686–1,837 | | | | Several oil and gas wells. |
| Newcastle [28] | Lawrence | 2,700 | 5⅛ | | | For oil or gas; unproductive. |
| Newcastle (vicinity) | do | 1,912 | | | | Gas and oil well. |
| Do | do | 700–900 | | | | Several wells. |
| New Sewickley Township. [29] | Beaver | 1,820 | | | | For oil or gas; unproductive. |
| Newton Hamilton | Mifflin | 800 | | | | Not in operation. |
| Nineveh (vicinity) [30] | Greene | 2,970–3,221 | | | | Several wells. |

[1] Records, Pa. 2d Geol. Surv., Repts., Vol. I⁵, pp. 232–233.
[2] Ibid., Vol. II, pp. 278–279.
[3] Ibid., Vol. G⁴, pp. 146–147.
[4] Ibid., Ann. Rept. for 1886, part 2, p. 720.
[5] Ibid., Vol. I⁵, p. 210.
[6] Ibid., pp. 242–243.
[7] Ibid., pp. 322–323.
[8] Ibid., p. 254.
[9] Record, W. Va. Geol. Surv., Repts., Vol. 1, 1889, pp. 214–30.
[10] Pa. 2d Geol. Surv., Repts., Vol. Q⁴, p. 175.
[11] Record, ibid., Vol. II., p. 275.
[12] Record, Pa. 2d Geol. Surv., Reports, Vol. I⁴, p. 97.
[13] Ibid., Vol. I⁵, pp. 229–230.
[14] Ibid., pp. 230–231.
[15] Ibid., Vol. II, p. 271; Vol. I⁵, pp. 197–198; Vol. III, pp. 404–405.
[16] Ibid., Vol. II, pp. 232–234.
[17] Ibid., Ann. Rept. for 1886, part 2, pp. 741–742.
[18] Ibid., Reports, Vol. III, pp. 411–412.
[19] Ibid., Vol. I⁵, p. 301.
[20] Ibid., pp. 263–268.
[21] Ibid., Ann. Rept. for 1886, part 2, pp. 688–689.
[22] Ibid., pp. 746–747.
[23] Record, Pa. 2d Geol. Surv., Reports, Vol. I⁵, pp. 316–317.
[24] Ibid., pp. 215–218.
[25] Ibid., Ann. Rept. for 1886, part 2, pp. 673–674, 721–724.
[26] Ibid., Reports, Vol. I⁴, pp. 69–77.
[27] Ibid., Vol. I⁵, pp. 258–260.
[28] Ibid., Vol. G⁴, pp. 151–152; Vol. II, pp. 275–276.
[29] Ibid., Vol. I⁵, pp. 231–232.
[30] Ibid., pp. 308–312.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| North Mahoning Township. | Indiana | 2,615(?) | | | | Gas well. |
| North Strabane Township. | Washington | 1,800 | | | | Small gas well. |
| North Warren (near)[1] | Warren | 475–965 | | | | Numerous gas and oil wells; some unproductive. |
| Do.[2] | do | 1,200–1,400 | | | | Several oil and gas wells; unproductive. |
| Do.[3] | do | 1,835 | | | | For oil; abandoned. |
| Oakdale Station (3 miles north).[4] | Allegheny | 2,164 | | | | For oil or gas. |
| Oakland Township[5] | Venango | 640 | | | | |
| O'Harra Township[6] | Allegheny | 1,950–2,060 | | | | For oil or gas; unproductive. |
| Ohio Township[7] | do | 1,715–2,240 | | | | Numerous gas and oil wells. |
| Oil City[8] | Venango | 1,070 | | | | |
| Do.[9] | do | 540–818 | | | | Several oil wells. |
| Oil Creek Township | Crawford | 3,500 | | | | For oil. |
| Do.[10] | Venango | 902–1,000 | | | | Several oil wells. |
| Olmstead (near) | McKean | 1,040 | | | | Oil well. |
| Oneida Station (1½ miles east).[11] | Butler | 2,135 | | | | Gas well. |
| Osterburg (2 miles northwest). | Bedford | 800 | | | +3 | |
| Parker City[12] | Armstrong | 850 | | | | Oil well. |
| Parker Township[13] | Butler | 1,183–1,418 | | | | For oil. |
| Pennsburg | Montgomery | 1,000 | | | | |
| Penn Township[14] | Allegheny | 1,750 | | | | For oil or gas; unproductive. |
| Do.[15] | Butler | 1,528–1,825 | | | | Numerous oil and gas wells; some good producers. |
| Do.[16] | Westmoreland. | 2,495 | | | | Large gas well. |
| Do.[17] | do | 1,580–1,690 | | | | Several large gas wells. |
| Perry Township[18] | Armstrong | 801–950 | | | | For gas or oil. |
| Do.[19] | do | 791 | | | | Oil and gas well. |
| Petroleum Center[20] | Venango | 500–900 | | | | Numerous oil wells; mainly productive. |
| Petrolia (vicinity)[21] | Butler | 1,400–1,631 | | | | Numerous gas and oil wells. |
| Philadelphia (Melrose). | Philadelphia | 553 | 10–8 | 150 | −6 | |
| Philadelphia (Ambler Works). | do | 500 | 6 | 250 | | |
| Philadelphia (Morocco Works). | do | 500 | 6 | 500 | | |
| Philadelphia (N. & G. N. Taylor). | do | 670 | 12 | 250 | | |
| Philadelphia (League Island). | do | 600 | | | | |
| Philadelphia (Hog Island). | do | 456 | | | | |
| Philadelphia (Twenty-fourth and Brown streets). | do | 495 | 6 | 60 | | |
| Philadelphia (Thirteenth and Mount Vernon streets). | do | 3,031 | 8 | 2,600 | | |
| Philadelphia (Seventh and Callow Hill streets). | do | 452 | 8 | 150 | | |

[1] Record, Pa. 2d Geol. Surv., Reports, Vol. I[4], pp. 10–15.
[2] Ibid., pp. 11–13.
[3] Ibid., p. 12.
[4] Ibid., Vol. I[5], pp. 262–263.
[5] Ibid., Vol. II, p. 202.
[6] Ibid., Vol. I[5], pp. 239–241.
[7] Ibid., pp. 244–251.
[8] Ibid., Vol. III, p. 416.
[9] Record, Am. Philos. Soc., Proc., Vol. 16, pp. 482–487; Pa. 2d Geol. Surv., Reports, Vol. II, pp. 204–205.
[10] Ibid., Pa. 2d Geol. Surv., Reports, Vol. I[4], pp. 53–54.
[11] Ibid., Pa. 2d Geol. Surv., Ann. Rept., 1886, part 2, pp. 717–718.
[12] Ibid., Reports, Vol. II, p. 242.
[13] Ibid., pp. 243–246.
[14] Ibid., Ann. Rept. for 1886, part 2, pp. 749–750.
[15] Ibid., pp. 713–716; Vol. I[6], pp. 203–208.
[16] Ibid., pp. 219–220.
[17] Ibid., pp. 218–219; Ann. Rept. for 1886, part 2, pp. 724–725.
[18] Ibid., Vol. II, pp. 240–241.
[19] Ibid., Vol. III, pp. 416–417.
[20] Records, Am. Phil. Soc., Proc., vol. 16, pp. 470–477.
[21] Records, Pa. 2d Geol. Surv., Reports, Vol. II, pp. 260–261, 283–296.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Philadelphia (Crown and Willow streets). | Philadelphia | 1,000 | 10 | 100 | | |
| Philadelphia (Fifteenth and Market streets). | do | 500 | 8 | 100 | | |
| Philadelphia (108 South Broad street). | do | 484 | 8 | 60 | | |
| Philadelphia (Broad street below Locust). | do | 525 | 8 | 110 | | |
| Philadelphia (Amholt & Schaefer Brewing Co.). | do | 1,500 | | 50 | | |
| Pike Township [1] | Potter | 1,835 | | | | For oil or gas; unproductive. |
| Do.[2] | do | 1,500 | | | | For oil or gas; abandoned. |
| Pinegrove | Schuylkill | 450 | 8 | Many. | No flow. | |
| Pinegrove Township.[3] | Venango | 1,869–2,060 | | | | Several oil wells. |
| Do.[4] | do | 912–1,070 | | | | For oil. |
| Do.[5] | Warren | 750–1,830 | | | | Several oil and gas wells; small production. |
| Pine Township [6] | Allegheny | 2,010 | | | | Two gas and oil wells. |
| Do.[7] | Armstrong | 1,410–1,693 | | | | Oil and gas wells. |
| Pioneer (vicinity) [8] | Venango | 437–980 | | | | Numerous oil wells; large production. |
| Pithole City [9] | do | 747 | | | | For oil or gas; unproductive. |
| Pittsburg | Allegheny | 5,506 | | | | No water below 1,100. |
| Pittsburg (Lang avenue and Grazier street).[10] | do | 4,700? | | | | For oil or gas; abandoned. |
| Pittsburg (Twenty-first Ward). | do | 1,616 | | | | Gas well. |
| Do | do | 1,620 | | | | For oil or gas; abandoned. |
| Pittsburg (Twenty-fifth Ward).[11] | do | 3,000 | 5⅝–5½ | | | Large gas well. |
| Pittsburg (Twenty-fourth Ward).[12] | do | 1,826 | | | | Gas well. |
| Pittsburg (Fourteenth Ward).[13] | do | 2,007 | 5⅝ | | | Dry hole. |
| Pittsburg (near steel works).[14] | do | 2,360 | | | | For oil or gas. |
| Pittsburg (just outside of city). | do | 1,901 | | | | Gas well. |
| Do | do | 1,600 | | | | Small flow of gas. |
| Pittsburg (Thirty-fourth Ward).[15] | do | 2,014 | 5⅝ | | | For gas; unsuccessful, owing to salt water. |
| Pittsburg (Twenty-first Ward).[16] | do | 1,635 | | | | |
| Pittsburg (Twenty-third Ward). | do | 1,600 | | | | For gas; flooded with salt water. |
| Pittsburg (Thirty-third Ward).[17] | do | 1,577 | | | | For oil or gas; abandoned on account of salt water. |
| Pittsburg (Fifteenth Ward).[18] | do | 1,576 | | | | For oil or gas; abandoned. |
| Pittsburg (Twenty-first Ward). | do | 1,575 | | | | For gas; flooded with water. |
| Pittsburg (Twenty-sixth Ward) | do | 1,535 | | | | For oil or gas; abandoned on account of salt water. |

[1] Records, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 148–149.
[2] Ibid., pp. 149–150.
[3] Ibid., p. 184.
[4] Ibid., Vol. I[4], p. 64.
[5] Ibid., pp. 16–18.
[6] Ibid., Vol. I[5], pp. 243–244.
[7] Ibid., Vol. III, pp. 409–410; Vol. II, p. 277.
[8] Ibid., Vol. II, pp. 43–64; Am. Phils. Soc., Proc., vol. 16, pp. 468–471.
[9] Records, Pa. 2d Geol. Surv., Reports, Vol. I[5], p. 179.
[10] Ibid., pp. 276–277.
[11] Ibid., Ann. Rept., 1886, part 2, pp. 730–732.
[12] Ibid., pp. 733–736.
[13] Ibid., pp. 736–737.
[14] Record, Pa. 2d Geol. Surv., Reports, Vol. III, pp. 398–400.
[15] Ibid., Ann. Rept. for 1886, part 2, pp. 739–741.
[16] Ibid., Vol. I[5], pp. 275–276.
[17] Ibid., Ann. Rept. for 1886, part 2, p. 738.
[18] Ibid., p. 741.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Pittsfield (Township.)[1] | Warren | 747 | | | | For oil or gas; unproductive. |
| Do.[2] | do | 1,500 | | | | For oil or gas; unsuccessful. |
| Pittston | Luzerne | 464–511 | 2 | | | Two wells. |
| Pleasantville (2½ miles northwest)[3] | Venango | 415 | | | | Oil well. |
| Pleasantville (4½ miles southeast).[4] | do | 1,000 | | | | Gas and oil well. |
| Pleasantville (2 miles northeast).[5] | do | 885 | | | | Do. |
| Pleasantville Borough.[6] | do | 693–1,044 | | | | Numerous oil and gas wells. |
| Pleasant Towhship[7] | Warren | 1,586 | | | | For oil or gas; unproductive. |
| Do.[8] | do | 818–900 | | | | Several small oil wells. |
| Pleasant Unity (2½ miles northwest).[9] | Westmoreland. | 650 | | | | For oil or gas; unproductive. |
| Plumer (1 mile south).[10] | Venango | 464 | | | | |
| President (near)[11] | do | 1,280 | | | | For oil or gas; abandoned. |
| Punxutawney (vicinity).[12] | Indiana | 2,745 | | | | Gas well. |
| Radnor Station | Delaware | 500 | 12 | | | Abandoned. |
| Do | do | 975 | 12–8 | 40–50 | Pumped. | Probably surface water. |
| Randolph (vicinity)[13] | Crawford | 565–950 | | | | Several oil wells. |
| Raymilton[14] | Venango | 893–1,410 | | | | Numerous oil or gas wells. |
| Raymilton (near)[15] | do | 845–1,410 | | | | Several oil or gas wells. |
| Reagantown (south of).[16] | Westmoreland. | 2,070 | | | | For oil or gas; unproductive. |
| Reeds Corners[17] | Crawford | 500 | | | | For oil or gas; abandoned. |
| Reibold[18] | Butler | 1,707–1,711 | | | | Two oil wells. |
| Reno[19] | Venango | 570–590 | | | | Several oil wells. |
| Do | do | 1,090 | | | | For oil; unproductive. |
| Renovo | Clinton | 4,000 | | | −600 | For oil; unsuccessful. |
| Do | do | 3,460 | | | | Gas well. |
| Do | do | 450–1,350 | | | | For oil or gas. |
| Richland Township[20] | Clarion | 1,040–1,700 | | | | Several oil wells. |
| Richmond Township | Crawford | 900 | | | | Oil and gas well. |
| Ridgway[21] | Elk | 1,820 | | | | Small gas well. |
| Do.[22] | do | 772 | | | | |
| Ridgway Township[23] | do | 1,678 | | | | For oil; unsuccesful. |
| Riverton | Cumberland (?) | 485 | 5 | | | |
| Robinson Township[24] | Allegheny | 1,770–2,427 | | | | Two oil and gas wells. |
| Rochester[25] | Beaver | 965 | | | | For gas and oil. |
| Rockland Station[26] | Venango | 701 | | | | For oil; abandoned. |
| Rockland Township[27] | do | 600–1,100 | | | | Numerous oil wells. |
| Ross Township[28] | Allegheny | 1,915–2,037 | | | | Two gas wells. |
| Rouseville (vicinity).[29] | Venango | 450–800 | | | | Numerous oil wells. |
| Ryerson Station (north of).[30] | Greene | 2,716 | | | | For oil or gas. |

[1] Record, Pa. 2d Geol. Surv., Reports, Vol. II, p. 196.
[2] Ibid., p. 197.
[3] Ibid., Vol. I[5], p. 175.
[4] Ibid., Am. Philos. Soc., Proc., Vol. 16, p. 497.
[5] Ibid., Pa. 2d Geol. Surv., Reports, Vol. I[4], pp. 54–55.
[6] Ibid., Vol. II, pp. 9–34; Vol. III, p. 420; Vol. I[4], p. 55; Am. Philos. Soc., Proc., vol. 16, pp. 435–460.
[7] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], p. 174.
[8] Ibid., Vol. I[4], p. 19.
[9] Ibid., Vol. II, pp. 280–281.
[10] Ibid., Vol. I[5], p. 180.
[11] Ibid., pp. 180–181.
[12] Ibid., Ann. Rept. for 1886, part 2, pp. 776–777.
[13] Pa. 2d Geol. Surv., Reports, Vol. Q[4], pp. 178–179.
[14] Record, ibid., Vol. I[5], pp. 181–183; Vol. I[4], p. 68; Vol. III, pp. 419–420.
[15] Ibid., Vol. I[4], pp. 68–69.
[16] Ibid., Vol. I[5], pp. 227–228.
[17] Ibid., Vol. Q[4], p. 212.
[18] Ibid., Vol. I[5], pp. 194–195.
[19] Ibid., Vol. II, pp. 208–210.
[20] Record, Pa. 2d Geol. Surv., Reports, Vol. II, pp. 226–227.
[21] Ibid., Ann. Rept. for 1886, Part II, p. 711.
[22] Ibid., Vol. G[4], pp. 142–143.
[23] Ibid., pp. 129–131.
[24] Ibid., Vol. I[5], pp. 268–269.
[25] Ibid., Vol. II, pp. 279–280.
[26] Ibid., Vol. II, p. 207.
[27] Ibid., pp 215–218.
[28] Ibid., Vol. I[5], pp. 255–257.
[29] Ibid., Amer. Phil. Soc., Proc., vol. 16, pp. 477–486.
[30] Ibid., Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 312–313.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| St. Joe (vicinity)[1] | Butler | 1,445–1,577 | | | | Gas wells. |
| St. Marys (west of)[2] | Elk | 2,010 | | | | Gas well. |
| Salem (vicinity)[3] | Venango | 962–1,200 | | | | Several oil or gas wells. |
| Salem Township[4] | Clarion | 1,198–1,200 | | | | Oil and gas wells. |
| Salisbury Basin[5] | Somerset | 678 | | | | |
| Saltsburg (near)[6] | Indiana | 2,014 | | | | For oil or gas; unproductive. |
| Sandy Creek Township.[7] | Venango | 792 | | | | Small oil well. |
| Sarvers Station[8] | Butler | 3,055 | | | | For oil or gas; abandoned. |
| Do[9] | do | 1,930 | | | | |
| Saxon Station[10] | do | 1,857 | | | | Gas well. |
| Saxonburg (2 miles west).[11] | do | 1,825 | | | | For oil or gas. |
| Scranton (1 mile southeast). | Lackawanna | 2,050 | 6 | | | Abandoned. |
| Scranton (2 miles northwest). | do | +700 | 6 | 30 | Flows. | |
| Scranton (3 miles west). | do | ±1,000 | 6 | 40 | | |
| Scranton (6 miles northeast). | do | 2,200 | 8–6 | | | |
| Sergeant Station[12] | McKean | 2,000 | | | | For oil or gas; abandoned. |
| Sergeant Station (near).[13] | do | 2,263 | | | | Dry hole. |
| Do.[14] | do | 2,000 | | | | |
| Sergeant Township[15] | do | 2,004 | | | | For oil or gas. |
| Do.[16] | do | 1,850 | | | | For oil and gas. |
| Do.[17] | do | 1,785 | | | | For oil or gas; abandoned. |
| Do.[18] | do | 2,043 | | | | Excellent gas well. |
| Do.[19] | do | 1,802 | | | | Good gas well. |
| Do.[20] | do | 2,000–2,380 | | | | Several oil and gas wells. |
| Sewickley Township.[21] | Allegheny | 2,008–2,133 | | | | Gas and oil wells. |
| Shaler Township[22] | Allegheny | 1,393 | | | | For gas; abandoned. |
| Shamburg[23] | Venango | 547–972 | | | | Numerous oil wells. |
| Sharon (1½ miles above).[24] | Mercer | 1,600 | | | | For gas or oil. |
| Sharpsburg (near)[25] | Allegheny | 2,010 | | | | For oil or gas; abandoned. |
| Sheffield (vicinity)[26] | Warren | 1,645 | | | | Good gas well. |
| Do[27] | do | 1,565 (?) | | | | For oil or gas; unsuccessful. |
| Do | do | 825 | | | | For oil or gas; abandoned. |
| Do[28] | do | 961–1,200 | | | | For oil or gas. |
| Sheffield Township[29] | do | 1,435–2,016 | | | | Numerous oil and gas wells. |
| Shenandoah (near) | Schuylkill | 538 | 8 | | | Oil well. |
| Shippensville (1½ miles south).[30] | Clarion | 2,025 | | | | For oil or gas; unproductive. |
| Sligo[31] | do | 1,151 | | | | Oil well. |
| Slippery Rock Township.[32] | Butler | 1,411 | | | | For oil or gas. |
| Do[33] | do | 1,400–1,436 | | | | For oil; unproductive. |

[1] Record, Pa. Geol. Surv., Ann. Rept. for 1886, Part II, pp. 713–714; Vol. I[4], p. 138.
[2] Ibid., Pa. 2d Geol. Surv., Reports, Vol. I[4], pp. 131–132.
[3] Ibid., Vol. II, pp. 205–206.
[4] Ibid., pp. 227–229.
[5] Ibid., Vol. I[4], pp. 146–147.
[6] Ibid., Vol. I[2], pp. 167–168.
[7] Ibid., Vol. II, p. 201.
[8] Ibid., Vol. I[5], pp. 193–194.
[9] Ibid., p. 194.
[10] Ibid., Vol. II, p. 269.
[11] Ibid., p. 270.
[12] Analysis, Pa. 2d Geol. Surv., Reports, Vol. R, p. 92.
[13] Ibid., pp. 243–245.
[14] Ibid., pp. 245–248.
[15] Record, Pa. 2d Geol. Surv., Reports, Vol. I[4], pp. 106–108.
[16] Ibid., pp. 108–111.
[17] Ibid., pp. 104–105.
[18] Ibid., Pa. 2d Geol. Surv., Ann. Rept. for 1886, Part II, pp. 695–696.
[19] Ibid., p. 698.
[20] Ibid., pp. 696–698, Vol. I[4], p. 117.
[21] Ibid., Pa. 2d Geol. Surv., Reports, Vol. I[5], p. 243.
[22] Record, Pa. 2d Geol. Surv., Ann. Rept. for 1886, Part II, pp. 752–753.
[23] Ibid., Vol. II, pp. 34–42, Amer. Philos. Soc., Proc., vol. 16, pp. 460–468.
[24] Ibid., Pa. 2d Geol. Surv., Reports, Vol. I[3], p. 419.
[25] Ibid., Vol. I[4], pp. 138–139.
[26] Ibid., pp. 23, 379–380.
[27] Ibid., pp. 24, 380–381.
[28] Ibid., Vol. II, pp. 194–195.
[29] Ibid., pp. 193–194; Vol. I[4], pp. 24–26, Vol. I[5], pp. 174–175; Ann. Rept. for 1886, Part II, pp. 698–700.
[30] Ibid., Vol. I[3], pp. 414–415.
[31] Ibid., Vol. G[4], pp. 149–150; Vol. II, pp. 234–235.
[32] Ibid., Vol. QQ, p. 154.
[33] Ibid., Vol. I[4], pp. 143–144, Vol. I[3], 417–418.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Smethport (west of).[1] | McKean | 2,004 | | | | For oil; abandoned. |
| Smethport (vicinity).[2] | do | 1,293–1,900 | | | | Several oil and gas wells; small production. |
| Smiths Ferry[3] | Beaver | 500 | | | | For oil or gas; unproductive. |
| Snowden Township[4] | Allegheny | 2,348 | | | | Gas well. |
| Snydersburg[5] | Clarion | 1,207 | | | | Oil well. |
| Sodom (near)[6] | Allegheny | 2,275–2,502 | | | | Several gas wells. |
| South Fayette Township.[7] | do | 2,140 | | | | Oil well. |
| South Shenango Township.[8] | Crawford | 1,065 | | | | Do. |
| South Strabane Township.[9] | Washington | 2,410–2,503 | | | | Gas wells. |
| South Versailles Township. | Allegheny | 1,550 | | | | Gas well. |
| Do[10] | do | 1,510–1,624 | | | | For oil or gas; abandoned on account of salt water. |
| Southwest Township.[11] | Warren | 500–1,550 | | | | Numerous oil and gas wells. |
| Sparta Township[12] | Crawford | 465–1,507 | | | | Several oil and gas wells; some productive. |
| Spartansburg (2½ miles southeast).[13] | do | 745 | | | | Gas well. |
| Spence Run[14] | Allegheny | 1,990 | | | | For oil or gas. |
| Spring Township | Crawford | 512 | | | | Gas well. |
| Spring Creek Township.[15] | Elk | 880 | | | | For oil; unsuccessful. |
| Do.[16] | Warren | 600–1,061 | | | | Several oil and gas wells; small production. |
| Springdale Station (near). | Allegheny | | | | | For gas; unsuccessful. |
| Springfield Township. | Erie | 400 | | | | For oil; unsuccessful. |
| Stoneboro (near)[17] | Mercer | 950 | | | | Oil well. |
| Stoneham (vicinity)[18] | Warren | 1,025–1,600 | | | | Several oil and gas wells; mostly productive. |
| Sugar Run[19] | McKean | 970 | | | | Oil well. |
| Sugar Creek Township.[20] | Venango | 583–606 | | | | Two oil wells; one abandoned. |
| Sulphur Run[21] | do | 925–1,350 | | | | Two oil wells. |
| Summit[22] | Butler | 1,822 | | | | Gas well. |
| Summit Township[23] | do | 1,735 | | | | Oil well. |
| Do | Erie | 400 | | | | Gas well. |
| Tarentum | Allegheny | +1,160 | | | | For gas or oil; abandoned. |
| Tarentum (vicinity).[24] | do | 482–1,705 | | | | Several gas and oil wells; small production. |
| Tarentum (3½ miles northeast).[25] | do | 2,010 | | | | For oil or gas; unproductive. |
| Tarentum (1½ miles southeast). | Westmoreland. | | | | | For oil or gas; abandoned. |
| Taylorstown[26] | Washington | 2,350–2,760 | | | | Several gas and oil wells. |
| Throop | Lackawanna | 2,380 | | | | Water in small quantity. |

[1] Record, Pa. 2d Geol. Surv., Reports, Vol. R, pp. 271–272.
[2] Ibid., pp. 272–276.
[3] Ibid., Vol. II, pp. 281–282.
[4] Ibid., Vol. $I^5$, pp. 273–274.
[5] Ibid., Vol. $G^4$, p. 149; Vol. $I^4$, p. 140.
[6] Ibid., Vol. $I^5$, pp. 269–273.
[7] Ibid., p. 273.
[8] Ibid., Vol. $Q^4$, p. 153.
[9] Ibid., Vol. $I^5$, p. 280.
[10] Ibid., Ann. Rept. for 1886, Part II, pp. 751–752.
[11] Record, Pa. 2d Geol. Surv., Reports, Vol. $I^4$, pp. 49–52; Vol. $I^5$, p. 855; Am. Phil. Soc., Trans., vol. 16, pp. 346–367.
[12] Ibid., Vol. $I^5$, pp. 186–187; Vol. $Q^4$, p. 227.
[13] Ibid., Vol. II, p. 69; Am. Philos. Soc., Proc., vol. 16, p. 493.
[14] Ibid., Pa. 2d Geol. Surv., Ann. Rept., 1886, part 2, p. 744.
[15] Ibid., Vol. $I^4$, pp. 132–133.
[16] Ibid., pp. 252–263.
[17] Ibid., p. 121.
[18] Ibid., pp. 20–23.
[19] Ibid., Vol. $I^4$, p. 91.
[20] Ibid., Vol. II, pp. 200–201.
[21] Ibid., Vol. $I^5$, pp. 182–183.
[22] Ibid., Vol. $I^3$, p. 404.
[23] Ibid., Vol. II, pp. 268–269.
[24] Ibid., Vol. $I^3$, pp. 405–408.
[25] Ibid., Vol. $I^5$, pp. 238–239.
[26] Ibid., pp. 298–299.

## PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Tidioute (vicinity)[1] | Warren | 403–715 | | | | Numerous oil and gas wells; none large producers, and many abandoned. |
| Tionesta (near)[2] | Forest | 437 | | | | Oil and gas well. |
| Tionesta Township[3] | do | 554–2,177 | | | | For oil or gas; unproductive. |
| Titusville | Crawford | 600 | 10 | | | |
| Titusville (near)[4] | do | 3,553 | | | | For oil or gas. |
| Titusville (vicinity)[5] | do | 400–806 | | | | Numerous oil and gas wells. |
| Do.[6] | Venango | 538–966 | | | | Do. |
| Toby Township[7] | Clarion | 1,400 | 8 | | | Oil well. |
| Towet City | Schuylkill | 418 | | | | |
| Tremont | do | | 8 | | | Do. |
| Triumph[8] | Warren | +472 | | | | For oil; unsuccessful. |
| Triumph (vicinity)[9] | do | 739–815 | | | | Several oil wells. |
| Triumph Township[10] | do | 2,464–2,700 | | | | For oil or gas; unsuccessful. |
| Do.[11] | do | 805–908 | | | | Numerous oil and gas wells. |
| Troy Township | Crawford | 500–1,700 | | | | Several oil and gas wells; some unproductive. |
| Tryonville (vicinity) | do | 600–1,000 | | | | Oil and gas wells. |
| Tuna Valley[12] | McKean | 1,035–1,919 | | | | Several oil and gas wells. |
| Turkey City (near)[13] | Clarion | 1,150 | | | | For oil or gas. |
| Union City[14] | Erie | 1,523 | | | | For oil or gas; unsuccessful. |
| Union Township | do | 1,600 | | | | For oil; unsuccessful. |
| Uniontown (3 miles northwest).[15] | Fayette | 2,001 | | | | Gas well. |
| Upper Middletown[16] | do | 2,440 | | | | For oil or gas; unproductive. |
| Upper St. Clair Township.[17] | Allegheny | 2,442 | | | | Gas well. |
| Venice (1 mile northwest).[18] | Washington | 2,247 | 7⅝–5⅝ | | | For oil or gas; unsuccessful. |
| Wall Station (near) | Allegheny | 1,850 | | Many. | Flows. | Water charged with soda; temp. 65°–70°; also gas well. |
| Waltz Mill (near)[19] | Westmoreland. | 1,769–3,151 | | | | Two borings for oil or gas; unproductive. |
| Warren (near)[20] | Warren | 531–1,065 | | | | Numerous oil and gas wells; some good producers. |
| Washington[21] | Washington | 2,285–2,599 | | | | Several oil and gas wells. |
| Washington (near)[22] | do | 1,977–2,420 | | | | Do. |
| Washington Township.[23] | Westmoreland. | 1,301–1,638 | | | | Gas wells. |
| Waterford (2 miles west). | Erie | 650 | | | | Oil and gas wells. |
| Watson Township[24] | Warren | 1,936 | | | | For oil or gas; unproductive. |
| Wayne Township[25] | Lawrence | 790 | | | | For oil; unsuccessful. |
| Do | Erie | 600 | | | | Gas and oil well. |
| Do.[26] | Crawford | 600–1,100 | | | | Several oil and gas wells. |
| Waynesburg[27] | Greene | 2,745 | | | | Oil well; abandoned. |

[1] Record, Pa. 2d Geol. Surv., Reports, Vol. I⁴, pp. 31–48; Am. Phil. Soc., Proc., vol. 16, pp. 372–374.
[2] Record, Am. Philos. Soc., Proc., vol. 16, p. 488.
[3] Ibid., Pa. 2d Geol. Surv., Reports, Vol. I⁴, pp. 77–79; Ann. Rept. for 1886, part 2, pp. 705–707.
[4] Ibid., Vol. Q⁴, p. 184; Vol. I³, p. 154; Vol. I⁴, p. 284.
[5] Ibid., Am. Philos. Soc., Proc., vol. 16, pp. 490–493; Pa. 2d Geol. Surv., Reports, Vol. I⁴, pp. 118–119.
[6] Ibid., Pa. 2d Geol. Surv., Reports, Vol. I⁴, p. 56.
[7] Ibid., Vol. I³, pp. 412–413.
[8] Record, Am. Philos. Soc., Proc., vol. 16, p. 494.
[9] Ibid., pp. 370–372.
[10] Records, Pa. 2d. Geol. Surv., Reports, Vol. I⁴, pp. 280–283.
[11] Ibid., Vol. I⁶, pp. 173–174; Vol. I³, pp. 283–286.
[12] Ibid., Vol. I⁴, pp. 87–92.
[13] Ibid., Vol. II, p. 227.
[14] Ibid., Vol. I⁴, p. 121.
[15] Ibid., Vol. I⁵, pp. 320–321.
[16] Ibid., p. 319.
[17] Ibid., pp. 271–272.
[18] Record, Pa. 2d Geol. Surv., Ann. Rept. for 1886, part 2, pp. 759–760.
[19] Ibid , Vol. I⁵, pp. 225–227.
[20] Ibid., Vol I⁴, pp. 1–9.
[21] Ibid., Ann. Rept. for 1886, part 2, pp. 764–767.
[22] Ibid., pp. 760–769.
[23] Ibid., pp. 726–730.
[24] Ibid., Vol. I⁴, p. 20.
[25] Ibid., Vol. QQ, p. 89.
[26] Ibid., Vol. Q⁴, pp. 122–125.
[27] Ibid., Ann. Rept. for 1886, part 2, pp. 772–773.

PENNSYLVANIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Waynesburg (vicinity).[1] | Greene | 2,675-2,900 | | | | Two oil and gas wells; one unproductive. |
| Wellersburg | Somerset | 1,207 | | | | Good water. |
| Wellsboro | Tioga | | | | | |
| West Alexander (3 miles west).[2] | Washington | 3,200 | | | | For oil or gas; unproductive. |
| West Amity Station (near).[3] | do | +2,390 | | | | Gas well. |
| West Branch Township.[4] | Potter | 1,750-2,750 | | | | For oil; unsuccessful. |
| West Deer Township.[5] | Allegheny | 2,243 | | | | For oil or gas; unproductive. |
| West Middletown[6] | Washington | 3,455 | | | | For oil or gas; abandoned. |
| Wicks Station[7] | Butler | 912 | | | | |
| Wilcox (4½ miles north).[8] | Elk | 1,850 | | | | Small oil well. |
| Wilkesbarre | Luzerne | 536 | 2 | | | |
| Do | do | 466 | | | | For water; unsuccessful. |
| Willow Tree[9] | Greene | 2,165 | | | | For oil or gas; abandoned. |
| Winfield Township[10] | Butler | 1,685 | | | | For oil or gas; unsuccessful. |
| Woodcock Township | Crawford | +600 | | | | For oil; unsuccessful. |
| Woodrow (near)[11] | Washington | +4,303 | | | | Gas well. |
| Wrightsville (1 mile northeast).[12] | Warren | 1,200 | | | | Abandoned as dry hole. |

[1] Record, Pa. 2d Geol., Surv., Reports, Vol. I[5], p. 312.
[2] Ibid., pp. 304-315.
[3] Ibid., p. 307.
[4] Ibid., Ann. Rept. for 1885, pp. 86-91.
[5] Ibid., Vol. I[5], p. 241.
[6] Ibid., Ann. Rept. for 1886, part 2, pp. 756-758.
[7] Ibid., p. 720.
[8] Ibid., Vol. G[4], pp. 143-146.
[9] Ibid., Vol. I[5], p. 316.
[10] Ibid., Ann. Rept. for 1886, part 2, p. 716.
[11] Ibid., pp. 755-756.
[12] Ibid., Vol. I[4], p. 236.

## PUBLICATIONS RELATING TO DEEP BORINGS IN PENNSYLVANIA.

Oil Well Records, selected from the collections of Mr. J. F. Carll, by J. P. Lesley, American Philosophical Society, Proceedings, vol. 16, pp. 346-380, Philadelphia, 1877.

On the First Systematic Collection and Discussion of the Venango County Oil Wells of Western Pennsylvania, by E. S. Nettleton, prepared for publication by J. F. Carll, American Philosophical Society Proceedings, Nos. 97-99, for 1876-1877, vol. 16, pp. 429-495, Philadelphia, 1877.

Pennsylvania Second Geological Survey, Report of Progress, 1876-1877, Oil Well Records and Levels, by J. F. Carll, Vol. II, 398 pages, Harrisburg, 1877.

Pennsylvania Second Geological Survey, Report for 1875-1879, The Geology of the Oil Regions of Warren, Venango, Clarion, and Butler Counties, by J. F. Carll, Vol. III, 482 pages, Harrisburg, 1880.

Pennsylvania Second Geological Survey, Report of Progress, 1879, The Geology of Erie and Crawford Counties, by I. C. White, Vol. QQQQ, 406 pages, Harrisburg, 1881.

Pennsylvania Second Geological Survey, Report for 1880-1883, Geological Report on Warren County and Neighboring Oil Regions, by J. F. Carll, Vol. I[4], 439 pages, Harrisburg, 1883.

Pennsylvania Second Geological Survey, Annual Report, 1886, part 2, Report on the Oil and Gas Regions, by J. F. Carll, pp. 575–918, Harrisburg, 1887.

Pennsylvania Second Geological Survey, Seventh Report on the Oil and Gas Fields of Western Pennsylvania for 1887–1888, by J. F. Carll, Vol. I[5], 356 pages, Harrisburg, 1890.

## RHODE ISLAND.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Providence | Providence | 400 | 6 | 85 | No flow. | |
| Do | do | 460 | 6 | 110 | No flow. | |
| Saylesville | do | 1,433 | | 15 | No flow. | Abandoned. |

## SOUTH CAROLINA.

| | | | | | | |
|---|---|---|---|---|---|---|
| Abbeville | Abbeville | 504 | 8 | 80 | —3 | |
| Aiken[1] | Aiken | 558 | 8–6 | 50 | —170 | In granite. |
| Bamberg[2] | Barnwell | 470–555 | 1¼–2 | 35–40 | +12–30 | Several wells. |
| Beaufort[3] | Beaufort | 800 | | | | |
| Camden | Kershaw | 618–625 | | Many. | —20 | Two wells. |
| Charleston[4] | Charleston | 1,970 | | 250 | +4 | Temp. 99.5°. |
| Do.[5] | do | 1,260 | | 30 | +25 | Saline water; temp. 87°. |
| Do | do | 1,950 | 3½ | 167 | | Temp. 99°. |
| Do | do | 1,970 | 2 11/16 | 104 | | Do. |
| Do | do | 2,050 | 4 | 451 | | Do. |
| Do | do | 1,945 | 5 | 695 | | Do. |
| Charleston (vicinity)[6] | do | 425–475 | | | | Several wells. |
| Chester | Chester | 700 | | | | In granite; unsuccessful. |
| Do | do | 500 | 8 | | | Unsuccessful. |
| Florence[7] | Florence | 1,335 | 10–8 | 100 | —20 | Lowest water at 1,215 to 1,220. |
| Do | do | 420 | | Many. | | Fine water. |
| Georgetown | Georgetown | 400? | | Not any | | |
| Green Pond | Colleton | 503 | 3 | 1 | Flows. | Temp. 70°. |
| Greenwood | Abbeville | 400 | 8 | 40 | —4 | |
| Hampton | Hampton | 800 | | | Flows. | |
| Do | do | 583 | 6 | Many. | —9 | Soft, irony water. |
| Jacksonboro | Colleton | 420 | 3 | 4 | Flows. | Temp. 72°. |
| Johns Island | | 500 | 6 | 11 | Flows. | Temp. 70°. |
| Marion | Marion | 1,244 | 8–6 | ½ | Flows. | |
| Mays River Neck | | 800 | | | —1 | Very sulphurous water. |
| Orangeburg[8] | Orangeburg | 1,160 | 6–2¾ | Many. | —52 | Pumped at 300 feet. |
| Peeples | Hampton | 850 | 6 | 100 | Flows. | Temp. 76°. |
| Sullivans Island | Laurens | 1,308 | 12–3 | 10 | | Temp. 87°. |
| Varnville | Hampton | 983 | 6 | Many. | —12 | |
| Walterboro | Colleton | 490 | 6 | Many. | —30 | Soft water. |

[1] Record, U. S. Geol. Surv., Bull. No. 138, p. 220.
[2] Ibid., p. 221.
[3] Analysis, Ibid., p. 217.
[4] Record, Municipal Report of City of Charleston, 1881, Artesian Wells, Report of Scientific Committee, pp. 3–4, plate.
[5] Analysis, U. S. Geol. Surv., Bull. No. 138, p. 212.
[6] Ibid., pp. 214–216.
[7] Record and Analysis, Ibid., pp. 218–219.
[8] Record, Ibid., p. 220.

## PUBLICATIONS RELATING TO DEEP BORINGS IN SOUTH CAROLINA.

Municipal Report of the City of Charleston, S. C., 1881; Artesian wells, report of Scientific Committee, etc., 61 pages, plates, Charleston, 1882.

Artesian Well prospects in the Atlantic Costal Plain region, by N. H. Barton, U. S. Geological Survey, Bulletin No. 138, 232 pages, plates, Washington, 1896.

## SOUTH DAKOTA.

[Arranged by counties.]

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Plankinton Township. | Aurora | 775 | 4½ | 200 | +127 | |
| Plankinton | do | 830 | 4½–3 | 225 | +209 | Flows at 540 and 740 feet also. |
| Do | do | 745 | 4 | 60 | | |
| White Lake | do | 863 | 4 | 150 | +80 | Flows at 790 and 850 feet. |
| Crystal Lake Township, sec. 17. | do | 850 | 4½ | 600 | +127 | |
| T. 105, R. 63, sec. — | do | 475 | 2 | 5 | | |
| T. 105, R. 66, sec. 24 | do | 953 | 2 | 115 | | |
| T. 104, R. 63, sec. 22[1] | do | 525 | 4–3 | 168 | | |
| T. 104, R. 66, sec. 2 | do | 844 | 2 | 150 | | A flow also at 710 feet. |
| T. 104, R. 63, sec. 21 | do | 523 | 4½ | 150 | +103 | |
| Do | do | 525 | 4½ | 150 | | |
| T. 104, R. 63, sec. 1 | do | 470 | 2 | 4 | | |
| T. 104, R. 66, sec. 3 | do | 922 | 2 | 75 | | |
| T. 103, R. 63, sec. 26[1] | do | 490 | 4 | 10 | | |
| Do | do | 530 | 2 | 10 | | |
| T. 103, R. 63, sec. 35 | do | 484 | 4–3 | | | |
| T. 103, R. 63, sec. 32 | do | 623 | 3–2 | 15 | | A flow also at 520 feet. |
| T. 103, R. 66, sec. 34 | do | 842 | 6 | | | Flows at 650 and 842 feet. |
| T. 103, R. 63, sec. — | do | 705 | 3 | 200 | | |
| T. 103, R. 63, sec. 28 | do | 716 | | | | Flows at 600 and 675 feet. |
| T. 103, R. 63, sec. — | do | 530 | 2 | 30 | | |
| T. 103, R. 63, sec. 13 | do | 420 | 2 | 30 | | |
| T. 102, R. 66, sec. 17 | do | 835 | 4 | 400 | | |
| T. 102, R. 63, sec. 10[1] | do | 613 | 2 | 3 | | |
| Hitchcock[2] | Beadle | 953 | 4–3 | 1,260 | +345 | |
| Huron[2] | do | 906 | 6 | 1,500 | +276 | Flows at 712 and 772 feet also. |
| Do | do | 847 | 6–4 | 600 | +276 | Flows at 776 and 826 feet. |
| Do | do | 1,040 | 8 | 350 | | A flow at 756 feet also. |
| Huron (1 mile sw.) | do | 1,080 | 5½ | 1,500 | | A flow at 900 feet also. |
| Huron[2] | do | 960 | 10–5⅝ | 2,250 | +380 | Temp. 70°. Several flows 240 to 960 feet. |
| Wolsey[2] | do | 930 | 8–5 | 330 | | Flows at 490, 808, 858, and 893 feet also. |
| T. 113, R. 64, sec. 15 | do | 1,066 | 4 | 600 | Flows. | |
| T. 113, R. 64, sec. 29 | do | 1,118 | 4 | 1,435 | +403 | |
| T. 112, R. 61, sec. 30[3] | do | 917 | 6–4 | | Flows. | Flows at 770 and 800 feet also. |
| T. 111, R. 61, sec. 19 | do | 836 | 3 | 360 | +338 | |
| T. 111, R. 61, sec. 31 | do | 792 | 3 | 200 | +292 | |
| T. 110, R. 62, sec. 11 | do | 1,080 | 5½ | 1,500 | Flows. | Flow at 900 feet also. |
| T. 110, R. 60, sec. 29 | do | 930 | 4 | 930 | +230 | |
| T. 109, R. 62, sec. 30 | do | 813 | 3 | 250 | +288 | |
| Scotland | Bonhomme | 590 | 6 | | | |
| Do[4] | do | 587 | | 9 | | |
| Springfield[4] | do | 592 | 8 | 3,292 | +198 | |
| Do | do | | 4 | | | |
| Tyndall[4] | do | 736 | 4½ | 1,000 | +69 | |
| Do | do | 752 | 8 | | | |
| Choteau Creek | do | 862[7] | | 1,400 | +143 | |
| Do | do | 897 | 6 | 1,600 | +133 | |
| T. 96, R. 59, sec. 15[5] | do | 700 | 2 | | | |
| Do.[5] | do | 590 | 7 | 1 | +126 | |
| Do.[5] | do | 645 | 3 | | +149 | |
| T. 94, R. 61, sec. 22[4] | do | 1,074⅝ | 3–2½ | ⅛ | +6 | |
| T. 94, R. 60, sec. 9 | do | 768 | 2 | 60 | | |
| T. 94, R. 58, sec. 32 | do | 640 | 2 | 75 | | |
| T. 93, R. 59, sec. 1 | do | 646 | 1 | 30 | +143 | |
| T. 93, R. 58, sec. 5[6] | do | 660 | 3 | 95 | +104 | |
| T. 95, R. 59, sec. 34 | do | 730 | 2 | 97 | +82 | |
| T. 60, R. 93, sec. 5[7] | do | 825 | | | | |
| T. 94, R. 58, sec. 19 | do | 576 | 3 | 11 | | |
| Aberdeen[8] | Brown | 955 | 8–3 | Many. | +230 | Flows at 925 and 940 feet. |

[1] Record, U. S. Geol. Surv., 18th Ann. Rpt., part 4, Pl. XL.
[2] U. S. Geol. Surv., 17th Ann. Rept., part 2, pp. 22-23.
[3] Ibid., Pl. 76.
[4] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, p. 58.
[5] At Hutterisches Colony, Record, U. S. Geol. Surv., 18th Ann. Rept., part 4, p. 587.
[6] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, p. 50.
[7] Record, U. S. Geol. Surv., 18th Ann. Rept., part 4, p. 586.
[8] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, pl. 72.

## SOUTH DAKOTA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Aberdeen[1] | Brown | 1,050 | 6–5 | 1,060 | +317 | |
| Do.[1] | do | 918 | $3\frac{3}{16}$ | 330 | +92 | Flows at 879 and 905 feet. |
| Do.[1] | do | 1,004 | 6–4 | 825 | +143 | |
| Do.[1] | do | 1,066 | 8–2 | Many. | Flows. | Flows at 910, 921, and 1,020 feet also. |
| Do.[1] | do | 1,300 | 8–$4\frac{1}{2}$ | 1,080 | +196 | Flows at 920, 995, and 1,077 feet. |
| Aberdeen, T. 123, R. 63, sec. 17. | do | 1,117 | $4\frac{1}{2}$ | Many. | Flows. | Flows at 925 and 1,090 feet. |
| Aberdeen, T. 123, R. 63, sec. 18. | do | 1,015 | $4\frac{1}{2}$ | 300 | +288 | Flows also at 928 feet. |
| Columbia[1] | do | 964 | $4\frac{1}{2}$ | 940 | +368 | Five flows 721–927 feet. |
| Frederick[1] | do | 1,139 | 6–4 | 139 | +161 | Flows at 985 and 1,045 feet also. |
| Groton[1] | do | 960 | $5\frac{3}{16}$–$3\frac{1}{4}$ | ..... | ..... | |
| Do | do | 922 | 6–3 | 830 | +310 | |
| T. 127, R. 63, sec. 12[2] | do | 856 | ..... | ..... | Flows. | |
| T. 127, R. 63, sec. 21[2] | do | 800 | ..... | ..... | Flows. | |
| T. 126, R. 60, sec. 32 | do | 1,030 | 6 | ..... | +80 | |
| T. 126, R. 61, sec. 31[2] | do | 965 | ..... | ..... | Flows. | |
| T. 125, R. 61, sec. 3[2] | do | 716 | ..... | ..... | Flows. | |
| T. 124, R. 60, sec. 31[2] | do | 942 | 4–2 | 150 | +315 | |
| T. 123, R. 60, sec. 8[2] | do | 977 | ..... | 105 | +184 | |
| Chamberlain[3] | Brule | 600 | 8 | ..... | +219 | |
| Do.[3] | do | 685 | 10–8 | 4,350 | +253 | |
| Do | do | 1,026 | 6 | 3,000 | Flows. | |
| Do | do | 815 | ..... | 300 | Flows. | Flows at 716, 750, and 780 feet also. |
| Do | do | 563 | 2 | ..... | Flows. | |
| Do | do | 600 | 2 | 2 | Flows. | |
| Kimball[3] | do | 1,068 | $4\frac{1}{2}$ | 185 | +46 | |
| T. 105, R. 68, sec. 26[3] | do | 935 | 6 | 815 | +173 | Flows at 750, 825, and 875 feet also. |
| T. 105, R. 68, sec. 3 | do | 987 | 6 | ..... | Flows. | |
| T. 104, R. 70, sec. 33 | do | 900 | 6 | ..... | Flows. | |
| T. 103, R. 71, sec. 12 | do | 1,030 | 6 | 700 | Flows. | |
| T. 103, R. 68, sec. 1 | do | 1,065 | 6 | 750 | +46 | |
| T. 103, R. 68, sec. 27 | do | 980 | 8 | ..... | Flows. | |
| T. 102, R. 70, sec. 21 | do | 1,185 | 6 | 800 | Flows. | |
| T. 102, R. 67, sec. 18 | do | 1,050 | 6 | 1,000 | Flows. | |
| T. 102, R. 68, sec. 16 | do | ..... | 6 | ..... | Flows. | |
| T. 102, R. 70, sec. 9 | do | 1,165 | ..... | Many. | Flows. | |
| T. 102, R. 70, sec. 15 | do | 1,100 | 6 | 800 | Flows. | |
| T. 102, R. 70, sec. 2 | do | 1,027 | ..... | Many. | Flows. | |
| T. 102, R. 71, sec. 2 | do | 1,227 | 8 | 600 | Flows. | |
| T. 102, R. 71, sec. 2 | do | 1,230 | 8 | 900 | Flows. | |
| T. 101, R. 68, sec. 12 | do | 937 | 6 | 1,098 | Flows. | Flows at 753, 786, and 851 feet also. |
| T. 101, R. 68, sec. 21 | do | 962 | 8–4 | Many. | Flows. | |
| Crow Creek Agency[4] | Buffalo | 780 | 6 | ..... | +414 | Temp. 72°; flows at 409 feet also. |
| Belle Fourche | Butte | 525 | 8 | 60 | +70 | Two wells; another flows at 410 feet. |
| Chandler | Charles Mix | 900 | 2 | ..... | ..... | Uncompleted. |
| Greenwood[5] | do | 651 | 6 | 3,000 | +274 | Temp. 70°; several flows 420–641 feet. |
| Lake Andes[5] | do | 755½ | 8–6 | 1,500 | +161 | Temp. 70°; flows at 623 and 725 feet also. |
| Do.[5] | do | 802 | 8–6 | 1,500 | +161 | Temp. 70°. |
| T. 100, R. 69, sec. 9 | do | 980 | 3 | 125 | Flows. | Chalk at 210 feet. |
| T. 100, R. 71, sec. 29 | do | 785 | 8 | 500 | Flows. | |
| T. 100, R. 71, sec. 18 | do | 868 | 8 | 2,352 | Flows. | |
| T. 100, R. 68, sec. 13 | do | 720 | 2–1 | Several. | Flows. | |
| T. 100, R. 68, sec. 9 | do | 830 | 2–$1\frac{1}{2}$ | 7 | Flows. | |
| T. 99, R. 69, sec. 19 | do | 966 | 2–$1\frac{1}{2}$ | 60 | +115 | Flows at 779, 803, 838, and 860 feet also. |
| T. 100, R. 71, sec. 26 | do | 688 | 8 | 1,700 | Flows. | Flows at 500 and 614 feet also. |
| T. 99, R. 67, sec. 18 | do | 769 | 2–1 | 7 | Flows. | Water at 515 feet. |
| T. 99, R. 67, sec. 21[6] | do | 907 | 8–$4\frac{1}{2}$ | 40 | Flows. | |
| T. 98, R. 68, sec. 13 | do | 1,006 | 6–4 | ..... | No flow. | |
| T. 98, R. 64, sec. 20 | do | 772 | 2 | 200 | +120 | |

[1] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, pp. 16–18, pl. 72.
[2] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, pp. 15–17.
[3] Ibid., pp. 42–48.
[4] Record, U. S. Geol. Surv., 18th Ann. Rept., part 4, p. 573.
[5] Record, U. S. Geol. Surv., 18th Ann. Rept., part 4, p. 570.
[6] Record, U. S. Geol. Surv., 17th Ann. Rept,, part 2, pp. 44–45.

## SOUTH DAKOTA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Clark | Clark | 1,200 | | | | Two wells; unsuccessful. |
| T. 117, R. 59, sec. 22 [1] | do | 1,200 | 6 | | | |
| T. 95, R. 52, sec. 9 | Clay | 500 | 3-2 | 3 | Flows. | |
| T. 94, R. 52, sec. 11 | do | 402 | 2 | 5 | Flows. | |
| T. 94, R. 52, sec. 15 | do | 400 | 1¼ | Many. | Flows. | |
| T. 94, R. 53, sec. 33 | do | 500 | 2 | Few. | Flows. | |
| T. 93, R. 51, sec. 29 | do | 400 | 1½ | 3 | Flows. | |
| T. 93, R. 51, sec. 31 | do | 410 | 1 | 1 | Flows. | |
| T. 92, R. 51, sec. 33 | do | 400 | 3-2 | Few. | Flows. | |
| Vermilion | do | 507 | 3 | Few. | Flows. | |
| Buffalo Gap | Custer | 800 | | | | Two borings; no water. |
| Mitchell [2] | Davison | 548 | | | +16 | |
| Do | do | 586 | 8 | 600 | +64 | Flows at 285, 445, and 560 feet. |
| Mitchell (12 miles southwest). [2] | do | 433 | 2 | 20 | Flows. | |
| Mitchell (6 miles northeast). [2] | do | 472 | 2 | 40 | Flows. | |
| Mitchell | do | 550 | 2 | 60 | +30 | |
| Mount Vernon | do | 442 | 2 | 8 | Flows. | |
| Mount Vernon (14 miles southeast). | do | 515 | 4½-3½ | 50 | Flows. | |
| T. 104, R. 60, sec. 17 [2] | do | 400 | | 100 | Flows. | |
| T. 104, R. 62, sec. 9 [3] | do | 550 | 2-1 | 130 | Flows. | |
| T. 104, R. 60, sec. 17 [3] | do | 456 | 3 | 10 | Flows. | |
| T. 103, R. 62, sec. 4 | do | 495 | 4 | 30 | Flows. | |
| T. 103, R. 62, sec. 3 [3] | do | 646 | 4½ | 700 | Flows. | |
| T. 104, R. 61, sec. — | do | 415 | | 30 | Flows. | |
| T. 104, R. 61, sec. 12 | do | 410 | 2 | 40 | Flows. | |
| T. 104, R. 62, sec. 18 | do | 408 | 2 | 20 | Flows. | |
| T. 104, R. 62, sec. 21 | do | 424 | 3 | 156? | Flows. | |
| T. 104, R. 62, sec. 12 | do | 416 | 2 | 5 | Flows. | |
| T. 104, R. 62, sec. 3 | do | 601 | 4-3 | 130 | Flows. | |
| T. 104, R. 62, sec. 7 | do | 444 | 2 | 15 | Flows. | |
| T. 104, R. 62, sec. 35 | do | 479 | 5-4 | Many. | Flows. | |
| T. 104, R. 60, sec. 35 | do | 507 | 4½-3 | 40 | Flows. | |
| T. 104, R. 62, sec. 6 | do | 458 | 1 | 3 | Flows. | |
| T. 104, R. 61, sec. 29 | do | 419 | 2 | 50 | Flows. | |
| T. 104, R. 61, sec. 8 | do | 577 | 2 | 50 | Flows. | |
| T. 104, R. 61, sec. 18 | do | 653 | 2-1 | 90 | Flows. | |
| T. 104, R. 61, sec. 33 | do | 425 | 3 | 210 | Flows. | |
| T. 104, R. 61, sec. 20 | do | 420 | 2 | 22 | Flows. | |
| T. 103, R. 61, sec. 19 | do | 411 | 2 | 120 | Flows. | |
| T. 103, R. 62, sec. 2 | do | 420 | 2 | 60 | Flows. | |
| T. 103, R. 62, sec. 14 | do | 450 | 2 | 60 | Flows. | |
| T. 103, R. 62, sec. 10 | do | 495 | 3 | 35 | Flows. | |
| T. 103, R. 62, sec. 11 | do | 408 | 2 | 45 | Flows. | |
| T. 103, R. 62, sec. 15 | do | 406 | 2 | 60 | Flows. | |
| T. 103, R. 61, sec. 19 | do | 410 | 2 | 110 | Flows. | |
| T. 102, R. 62, sec. 9 | do | 460 | 2 | 90 | Flows. | |
| T. 102, R. 62, sec. 31 | do | 642 | 2-1¼ | 20 | Flows. | |
| T. 102, R. 62, sec. 29 | do | 485 | 2-1¼ | 30 | Flows. | |
| T. 102, R. 62, sec. 6 | do | 460 | 2 | 25 | Flows. | |
| T. 101, R. 61, sec. 25 | do | 520 | 2 | 27 | Flows. | |
| T. 101, R. 61, sec. 28 | do | 530 | 2 | 15 | Flows. | |
| T. 101, R. 61, sec. 21 | do | 535 | 1¼ | 35 | Flows. | |
| T. 101, R. 61, sec. 2 | do | 425 | 2 | 30 | Flows. | |
| T. 101, R. 60, sec. 32 | do | 435 | 2 | 25 | Flows. | |
| T. 101, R. 60, sec. 9 | do | 477 | 2 | | Flows. | |
| T. 101, R. 60, sec. 29 | do | 413 | 2 | 35 | Flows. | |
| S. S. Slade's well | do | 440 | 2 | 10 | Flows. | |
| Andover [4] | Day | 1,075 | 6-4½ | 300 | +207 | |
| Webster | do | 1,400 | | | | Small flow only at 1,100 feet. |
| Cheyenne Agency [5] | Dewey | 1,337 | 4 | 500 | +472 | Temperature 80°. |
| Armour | Douglas | 800 | 8 | 1,500 | Flows. | |
| Do. [6] | do | 737 | 6 | 1,500 | +126 | |
| Delmont [6] | do | 821 | 2 | 60 | Flows. | |
| Flensburg [6] | do | 611 | 2 | 60 | Flows. | |
| Do | do | 651 | 2 | | Flows. | |
| Do | do | 775 | 2 | 65–70 | Flows. | |
| T. 100, R. 64, sec. 26 [6] | do | 937 | 6 | 900 | +72 | |

[1] Record, U. S. Geol. Surv., 18th Ann. Rept., 1897, part 4, pp. 18, 21.
[2] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, pp. 39–40, 44.
[3] Record, U. S. Geol. Surv., 18th Ann. Rept., part 4, p. 575.
[4] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, p. 19.
[5] Record, U. S. Geol. Surv., 18th Ann. Rept., part 4, p. 588.
[6] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, pp. 46–50.

## SOUTH DAKOTA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| T. 100, R. 64, sec. 26 | Douglas | 975 | 4 | 1,000 | Flows. | |
| T. 100, R. 62, sec. 18 | do | 1,025 | | 1,025 | Flows. | |
| T. 100, R. 63, sec. 15 | do | 750 | 4 | 600–700 | Flows. | |
| T. 100, R. 62, sec. 16 | do | 600 | 2 | Many. | Flows. | |
| T. 98, R. 65, sec. 21[1] | do | 860 | 6 | 900 | Flows. | |
| T. 99, R. 63, sec. 35 | do | 703½ | 8–6 | 2,100 | +172 | |
| T. 99, R. 65, sec. 14 | do | 925 | 4 | 600–700 | Flows. | |
| T. 99, R. 65, sec. — | do | 1,010 | 6 | 1,000 | Flows. | |
| T. 98, R. 65, sec. 2 | do | 901 | 8–6 | 650 | Flows. | |
| Ipswich | Edmunds | 1,265 | 4½–3½ | Many. | +244 | |
| Ardmore | Fall River | 1,500 | | | | Unsuccessful. |
| Argentine[2] | do | 550 | | | Flows. | |
| Edgemont[3] | do | 1,125 | | Several. | — 60 | Plugged at 700 feet; water from 509 feet. |
| Edgemont (near) | do | 960 | | Several. | — 30 | Water from 578 feet. |
| Minnekahta[4] | do | 1,348 | | None. | | |
| Faulkton | Faulk | 1,032 | | 100 | Flows. | |
| Orient (4 miles NE.)[5] | do | 1,215 | 6–5¼ | 950 | Flows. | |
| T. 113, R. 69, sec. — | Hand | 1,200 | | | Flows. | Flows at 1,087 and 1,127 feet also. |
| T. 113, R. 67, sec. 25 | do | 1,137 | 6–3 | 480 | Flows. | |
| T. 112, R. 68, sec. 7 | do | 1,200 | 4 | 50 | Flows. | |
| St. Lawrence | do | 1,272 | | Few. | + 92 | First flow at 1,070 feet. |
| Miller[6] | do | 1,139 | 6¼–4½ | 360 | +276 | |
| T. 112, R. 68, sec. 10 | do | 1,140 | 3½ | | Flows. | |
| T. 112, R. 67, sec. 33 | do | 1,375 | 3 | 1,000 | +273 | |
| T. 112, R. 67, sec. 18 | do | 1,343 | 3 | 350 | +287 | |
| T. 104, R. 57, sec. 8[7] | Hanson | 589 | 2–1½ | 50 | Flows. | |
| T. 104, R. 58, sec. 14[7] | do | 528 | 2–1¼ | 30 | Flows. | |
| T. 104, R. 58, sec. 13[7] | do | 550 | 2 | 150 | Flows. | |
| T. 104, R. 57, sec. 22 | do | 543 | 2 | 50 | Flows. | |
| T. 104, R. 58, sec. 9 | do | 535 | 2 | 5 | Flows. | |
| T. 104, R. 58, sec. 17 | do | 440 | 1 | Few. | Flows. | |
| T. 104, R. 57, sec. 8 | do | 600 | 1¼ | 20 | Flows. | |
| T. 104, R. 58, sec. 12[8] | do | 483 | 4 | 35 | +46 | |
| T. 104, R. 57, sec. 27 | do | 508 | 2 | 4 | Flows. | |
| T. 104, R. 57, sec. 7 | do | 510 | 3–2 | 16 | Flows. | |
| East Pierre[9] | Hughes | 1,192 | | 900 | +380 | |
| Harrold[9] | do | 1,453 | 4 | 84 | +62 | Temp. 95°. |
| Pierre | do | 1,160 | | 600 | Flows. | Temp. 92°. |
| Menno | Hutchinson | 417 | 6 | | | Small flow. |
| Northwest corner of county.[10] | do | 560 | | 10 | | |
| Parkson[10] | do | 542 | 3 | 30 | +46 | |
| Parkson (1 mile southwest).[10] | do | 515 | | 50 | Flows. | |
| Tripp (4 miles north)[10] | do | 580–540 | 2 | 9 | Flow. | Three wells. |
| Tripp | do | 815 | 6 | 700 | +21 | |
| T. 97, R. 57, sec. 21 | do | 747 | 2 | 6 | Flows. | |
| T. 98, R. 61, sec. — | do | 482 | | 60 | Flows. | |
| T. 98, R. 60, sec. 21 | do | 559 | 2 | 50 | Flows. | |
| T. 99, R. 60, sec. 7 | do | 527 | 2 | 150 | Flows. | |
| T. 100, R. 61 | do | 419–585 | 3–1½ | 90–1 | Flow. | Fourteen wells. |
| T. 100, R. 60 | do | 420–462 | 2 | 10–3 | Flow. | Three wells. |
| T. 100, R. 61, sec. 25[11] | do | 458 | 2 | | Flows. | |
| T. 99, R. 61 | do | 490–572 | 2–1½ | 50–8 | Flow. | Fourteen wells. |
| T. 99, R. 60[11] | do | 485 | 2 | 25 | Flows. | |
| T. 99, R. 60[11] | do | 485 | 1½ | 90 | Flows. | |
| T. 99, R. 60 | do | 400–540 | 6–1½ | 25–1 | Flow. | Twelve wells. |
| T. 98, R. 60[11] | do | 559 | 2 | 50 | Flows. | |
| T. 98, R. 59 | do | 400–450 | 2–1½ | 15–1 | Flows. | Six wells. |
| T. 99, R. 59 | do | 490 | 2 | | Flows. | |
| T. 98, R. 60 | do | 475–580 | 5–2 | 120–10 | Flow. | Fifteen wells. |
| T. 98, R. 61 | do | 500–798 | 3–1½ | 40–13 | Flow. | Nine wells. |
| T. 97, R. 60 | do | 550–614 | 4½–1½ | 50–40 | Flow. | Three wells, not including town well at Tripp. |
| T. 97, R. 61 | do | 945 | | | Flows. | |
| T. 97, R. 59 | do | 517–550 | 2–1¼ | 30 | Flow. | Two wells. |

[1] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, pp. 46–50.
[2] Analysis, U. S. Geol. Surv., 21st Ann. Rept., 1899–1900, part 4, p. 570.
[3] Ibid., pp. 568, 571.
[4] Ibid., p. 573.
[5] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, p. 22.
[6] Ibid., p. 26.
[7] Ibid., pl. 84.
[8] Record, U. S. Geol. Surv., 18th Ann. Rept., part 4, p. 579.
[9] Record, U. S. Geol. Surv., 17th Ann. Rept., part 2, pl. 76.
[10] Ibid., pp. 47–48.
[11] Record, U. S. Geol. Surv., 18th Ann. Rept., 1897, part 4, pp. 580–585.

## SOUTH DAKOTA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| T. 97, R. 57, sec | Hutchinson | 500–406 | 2–1¼ | 2 | Flow. | Two wells. |
| T. 97, R. 57 | do | 747–485 | 2–1¼ | 4–3 | Flow. | Do. |
| T. 97, R. 56 | do | 445 | 2 | | Flows. | |
| Highmore[1] | Hyde | 1,552 | 6 | 9 | +35 | Temp. 72°. |
| T. 108, R. 64, sec. 11 | Jerauld | 799 | 2–1¼ | 2 | Flows. | |
| T. 108, R. 65, sec. 5[2] | do | 1,057 | 2½ | 200 | +207 | |
| T. 106, R. 63, sec. 2 | do | 715 | 2 | 200 | +304 | |
| T. 106, R. 63, sec. 6 | do | 760 | 3–2 | 280 | +253 | |
| T. 106, R. 64, sec. 9[2] | do | 880 | 2½ | 280 | +262 | |
| T. 106, R. 64, sec. 17 | do | 810 | 2½ | 5 | Flows. | |
| T. 106, R. 64, sec. 15 | do | 816 | 3 | 10 | Flows. | |
| Desmet | Kingsbury | 1,610 | | | | |
| Arlington | do | 800 | | | No flow. | |
| Iroquois[3] | do | 1,115 | 4½ | 1,000 | +154 | |
| T. 109, R. 58, sec. 30 | do | 600 | 2 | | Flows. | |
| Britton[4] | Marshall | 1,004 | 8–3½ | 600 | +365 | Temp. 64°. |
| Langford | do | 1,050 | 6 | 400–500 | +138 | |
| Newark | do | 940 | 8–6 | 600 | +288 | Water at 420, 480, and 900 feet. |
| Rosebud Agency (26 miles northeast). | Meyer | 2,500 | 8–6 | | −600 | |
| Gettysburg | Potter | 2,140 | | | −100 | |
| Artesian (1 mile southwest).[5] | Sanborn | ±630 | 3 | | + 81 | |
| Letcher[6] | do | 577 | 3–2 | 90 | +207 | Water at 300, 400, and 570 feet. |
| T. 105, R. 61, sec. 23[6] | do | 561 | | 125 | Flows. | |
| T. 105, R. 61, sec. 15[6] | do | 578 | 2 | 70 | Flows. | |
| T. 107, R. 62, sec. 29 | do | 742 | 3 | 425 | +299 | |
| T. 105, R. 62, sec. 26 | do | 445 | 2–1 | 3 | Flows. | |
| T. 105, R. 60, sec. 10 | do | 625 | 2 | 30 | Flows. | |
| T. 105, R. 60, sec. 20 | do | 497 | 2 | 165 | Flows. | |
| T. 105, R. 62, sec. 19 | do | 485 | 2 | 4 | Flows. | |
| T. 105, R. 62, sec. 17 | do | 463 | 2 | 6 | Flows. | |
| T. 105, R. 62, sec. 30 | do | 500 | 1¼ | 15 | Flows. | |
| T. 105, R. 60, sec. 14 | do | 511 | 2 | 100 | Flows. | |
| T. 105, R. 61, sec. 15 | do | 584 | 2 | 80 | Flows. | |
| T. 105, R. 60, sec. 27 | do | 445 | 2 | 30 | Flows. | |
| Woonsocket[6] | do | 725 | 6 | 1,150 | +299 | |
| Do | do | 775 | | Many. | +288 | |
| Ashton | Spink | 1,003 | 8 | 2,000 | +345 | |
| Do.[7] | do | 925 | 6–4¼ | 100 | +138 | Flows at 650, 795, and 900 feet. |
| Conde | do | 960 | 4¼ | Many. | Flows. | |
| Doland[7] | do | 897 | 4½ | 370 | +281 | |
| Do | do | 957 | | 600 | +258 | |
| Frankfort[7] | do | 1,008 | 8–4¼ | Many. | Flows. | Flows at 803, 864, 945 and 1,000 feet. |
| Mellette | do | 1,065 | 8–6 | 1,200 | Flows. | |
| Do.[7] | do | 920 | 6–4¼ | 1,320 | +380 | |
| Northville | do | 980 | 9–6 | 1,900 | +359 | Flows at 875 and 956 feet. |
| Redfield[7] | do | 964 | 6¼–4½ | 1,260 | +407 | |
| Do | do | 1,025 | 6 | 1,900 | Flows. | |
| Turton | do | 920 | 4¼ | 1,300 | Flows. | |
| T. 119, R. 63, sec. 22[7] | do | 958 | | 60 | +324 | |
| T. 119, R. 63, sec. 19[7] | do | 930 | 4¼ | 670 | +352 | |
| T. 119, R. 64, sec. 23[7] | do | 993 | 6–4¼ | 1,300 | +311 | |
| T. 119, R. 63, sec. 32[7] | do | 920 | 4½–3 | 2,894 | Flows. | |
| T. 117, R. 64, sec. —[7] | do | 987 | | Many. | Flows. | |
| T. 117, R. 62, sec. 32 | do | 950 | 4¼ | 350 | Flows. | |
| T. 116, R. 62, sec. 4 | do | 895 | 4½ | 600 | Flows. | |
| T. 115, R. 61, sec. 7 | do | 1,050 | 8–4½ | 75 | +200 | |
| T. 114, R. 63, sec. 26[7] | do | 909 | | 1,200 | Flows. | |
| T. 114, R. 62, sec. 18[7] | do | 1,000 | 6–4½ | 150 | +288 | |
| T. 114, R. 63, sec. 32[7] | do | 1,150 | 6–4½ | 550 | +115 | |
| T. 114, R. 62, sec. 30 | do | 909 | 4½ | 1,000 | +345 | |
| Fort Randall[8] | Todd | 610 | 4 | 600 | Flows. | |
| Yankton (Excelsior Mill). | Yankton | 493 | 8 | 3,000 | +120 | |
| Yankton (Fountain Mill).[9] | do | 600 | 6 | 1,500 | +110 | |
| Yankton (Asylum)[9] | do | 672 | 4½ | 165 | +23 | |
| Yankton (city well)[9] | do | 942 | 6 | 880 | +41 | |

[1] Record, U. S. Geol. Survey, 17th Annual Report, part 2, p. 24.
[2] Ibid., pp. 29–30.
[3] Ibid., pp. 22–23.
[4] Ibid., p. 181.
[5] Record, U. S. Geol. Surv., 18th Annual Report, 1897, part 4, p. 575.
[6] Records, U. S. Geol. Surv., 17th Annual Report, 1896, part 2, pp. 31–33.
[7] Ibid., pp. 19–20.
[8] Ibid., p. 58.
[9] Record, U. S. Geol. Surv., 17th Annual Report, 1896, part 2, pp. 53, 58.

## SOUTH DAKOTA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Yankton (College Hill). | do | 524 | 2 | 2,600 | +62 | |
| Yankton (Wilcox well). | Yankton | 455 | 3 | 330 | +127 | |
| Yankton (Donaldson well). | do | 525 | 4½ | | Flow. | |
| T. 93, R. 56, sec. 12 | do | 475 | 2 | 6 | Flow. | |
| T. 93, R. 56, sec. 17 | do | 400 | 2 | 500 | Flow. | |
| T. 93, R. 56, sec. 16 [1] | do | 500 | 6–5 | 1,300 | +115 | |
| T. 93, R. 55, sec. 8 | do | 521 | 3 | 350 | +113 | |
| T. 93, R. 54, sec. 18 [1] | do | 422 | 3½–3 | 120 | Flow. | |
| T. 94, R. 55, sec. 19 [1] | do | 648 | 2 | 4 | Flow. | |
| T. 93, R. 54, sec. 11 | do | 450 | 2 | 80 | Flow. | |
| T. 94, R. 55, sec. 18 | do | 480 | 2 | 55 | +23 | |
| T. 94, R. 55, sec. 22 | do | 522 | 2 | 30 | Flow. | |
| T. 94, R. 55, sec. 21 | do | 435 | 2 | 100 | Flow. | |
| T. 94, R. 54, sec. 36 | do | 495 | 2 | 75 | Flow. | |
| T. 95, R. 55, sec. 8 | do | 535 | 2 | 50 | Flow. | |

## PUBLICATIONS RELATING TO DEEP BORINGS IN SOUTH DAKOTA.

Report on Irrigation, 52d Congress, 1st session, Senate Ex. Doc. No. 41, part 2, pp. 40–65, Washington, 1893.

Preliminary Report on the Artesian Waters of a Portion of the Dakotas, by N. H. Darton, United States Geological Survey, Seventeenth Annual Report, 1895–96, part 2, pp. 609–694, Washington, 1896.

New Development in Well Boring and Irrigation in South Dakota, by N. H. Darton, United States Geological Survey, Eighteenth Annual Reports, 1896–97, part 4, pp. 567–615, Washington, 1897.

Geology and Water Resources of a portion of Eastern South Dakota, by J. E. Todd, United States Geological Survey, Water-Supply and Irrigation Papers, No. 34, 34 pages, plates and maps, Washington, 1900.

## TENNESSEE.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Bells | Crockett | 1,100 | | | | Prospect well; unsuccessful. |
| Chattanooga | Hamilton | 600 | 10–8 | 50 | –45 | |
| Crockett Mills | Crockett | +900 | 3 | | No flow. | Abandoned. |
| Dull (2 miles from) | Dickson | 565 | 4½ | | | Three oil wells. |
| Do | do | 2,000 | 4½ | | | Oil well. |
| Dyersburg [2] | Dyer | 600 | | 140 | Flows. | Do. |
| Do | do | 600 | | 130 | | Do. |
| Glen Mary (2 miles west). [3] | Scott | 1,236–1,340 | | | | Oil wells; several others in Scott County. |
| Do | do | 600 | | | | |
| Helenwood (?) | do | 1,500 | | | | For oil; unsuccessful. |
| Hurricane Creek [2] | Union (?) | 530 | | | | Oil well. |
| Iron City | Lawrence | 400 | 12 | | | For oil or gas. |
| Do | do | 480 | | | | For gas; not in use. |
| Kingston Springs | Cheatham | 1,000 | | | | Unsuccessful. |
| Knoxville | Knox | 2,100 | | | | Temp. 57°. |
| Memphis | Shelby | 450–400 | 8–6 | 200–100 | | Several wells. |
| Do. [4] | do | +1,156 | | | | |
| Do | do | 3,000–2,000 | | | | Several wells for oil; abandoned. |
| Rugby | Morgan | | | | | Several wells for oil. |
| Saltillo | Hardin | 950 | 36–6 | Many. | Flows. | Sulphur; temp. 45°; bored in 1830. |
| Tullahoma | Coffee | 700 | | | | Oil well. |

[1] Record, U. S. Geol. Surv., 17th Annual Report, 1896, part 2, pp. 53,58.
[2] Tennessee, Comm'r Ag. Rept., Oil Region, 1877, pp. 54, 73.
[3] U. S. Geol. Surv., 17th Ann. Rept., 1895–96, part 3, pp. 699–700.
[4] Tennessee, State Board of Health, Bulletin, vol. 5, 1890, pp. 98–106.

## TEXAS.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Abbott (1½ miles N.) | Hill | 446 | | 20 | −160 | |
| Do | do | 486 | | Several. | −186 | |
| Abilene | Taylor | 2,500 | | | | |
| Albany | Shackelford | 400 | | Few. | | |
| Alta Loma | Galveston | 875-950 | 9 | 310 | 22 | Numerous wells. Temp. 75°-78°. |
| Alvarado | Johnson | 1,500 | | | Flows. | |
| Alvin (4 miles north) | Brazoria | 502 | 2 | 70 | | |
| Aquilla | Hills | 600 | | Few. | Flows. | |
| Do | do | 800 | | Several. | Flows. | |
| Archer City | Archer | 550 | 6 | Few. | −50 | Alkali water. |
| Do.[1] | do | 736 | | | No flow. | |
| Do | do | 500 | | | | Salt water only. |
| Arcola | Fort Bend | ±910 | | 300 | Flows. | |
| Argyle (1½ miles east) | Denton | 500 | | | Flows. | Soft water. |
| Arlington | Tarrant | 1,480 | | 21 | | Strong mineral water. |
| Aul[2] | Bexar | 673 | | | −4 | |
| Austin (Fifth and Jacinto streets).[3] | Travis | 2,020 | | 175 | Flows. | |
| Austin (asylum) | do | 1,280 | | | | |
| Austin (poorhouse) | do | 1,300 | | 5 | No flow. | |
| Austin | do | 471 | | 5 | | |
| Do | do | 1,450 | | 5 | | |
| Austin (East Fifth street). | do | 700 | | 14 | Flows. | In progress 1897; sulphur water. |
| Austin (Natatorium)[4]. | Travis | 2,025 | 10-8-7-6 | 175 | Flows. | Main flow at 1,875 feet; temp. 100°. |
| Austin (Asylum)[4] | do | 1,975 | | +104 | +40 | |
| Austin[4] | do | 2,053 | | | −5 | |
| Do | do | 1,280 | | | | |
| Austin (near) | Kinney | 400 | | | | Several wells. |
| Baileyville | Milan | 800 | | | | Failure. |
| Baileyville (3 miles west). | do | 831 | | | No flow. | Water very salty. |
| Baird | Callahan | 415 | 8 | | | Abandoned. |
| Bastrop | Bastrop | +900 | | | | No water. |
| Barstow | Ward | +500 | | | No flow. | |
| Batesville | Zavalla | 700 | | | −300 | |
| Bedford (2 miles S.) | Tarrant | 602½ | | | Flows. | Soft water. |
| Belcherville | Montague | 900-1,200 | | 70 | Flow. | Three wells; soft water. |
| Belton (9 miles W.) | Bell | 700 | | | Flows. | |
| Belton (10 miles SE.) | do | 1,800 | | Many. | Flows. | |
| Belton (2 miles NE.) | do | 1,000 | | | Flows. | |
| Belton (19 miles W.) | do | 530 | | | Flows. | |
| Belton (9 miles SW.) | do | 772 | | 70 | Flows. | |
| Belton[5] | do | 975 | 4 | 173.6 | Flows. | Soft water. |
| Belton (1 mile SW.) | do | 1,060 | | 347 | Flows. | Do. |
| Belton (1 mile S.) | do | 1,000 | | | Flows. | |
| Big Spring | Howard | 603 | 7 | | | Salt water at 300 feet; abandoned. |
| Birdville | Tarrant | 406 | | | No flow. | Soft water. |
| Birdville (1 mile N.) | do | 486 | | | −20 | Do. |
| Birdville (one-half mile from). | do | 420 | | Many. | Flowed once. | |
| Blum (4½ miles E.) | Hill | 532 | | | −200 | |
| Bolivar | Denton | 1,176 | | | Flows. | |
| Bonham | Fannin | +400 | | | | |
| Do | do | +400 | | | | |
| Do | do | 1,500 | | | | No water. |
| Bowie | Montague | 700 | | | −160 | |
| Bowie (one-half mile west). | do | 600 | | | | |
| Boyce (1½ miles west) | Ellis | 981 | | 1½ | Flows. | Soft water. |
| Do | do | 975 | | | Flows. | Do. |
| Brackettville (7 miles from).[6] | Kinney | 404 | | Several. | | |
| Brambleton | Tarrant | 485 | | | −130 | Do. |
| Branchville (4 miles east). | Milan | | | | Flows. | |
| Do | do | 700 | | | −6 | |
| Breckenridge | Stephens | 1,400 | | | | Failure. |

[1] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 262, Washington, 1890.
[2] Record, U. S. Geol. Surv., 18th Ann. Rept., 1896-97, Part II, p. 272, Washington, 1898.
[3] Ibid., pp. 280-283.
[4] U. S. Geol. Surv., 18th Ann. Rept., 1896-97, Part II, pp. 280, 284, Washington, 1898.
[5] Record, Artesian waters of Texas west of the 97th meridian, by R. T. Hill, 52d Congress, 1st session, Senate Ex. Doc. No. 41, part 3, p. 116, Washington, 1893.
[6] Record, U. S. Geol. Surv., 18th Ann. Rept., 1896-97, part 2, p. 278, Washington, 1898.

## TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Bremond | Robertson | 1,500 | | | No flow. | Some water. |
| Brenham | Washington | 600 | | | | Failure. |
| Brownville (50 miles northwest). | Hidalgo | 70 | | | No flow. | |
| Brownwood (northeast of). | Brown | 1,900 | | | | Oil borings; some gas. |
| Brownwood | do | 1,938 | 10-6 | 32 | +74 | |
| Do | do | 1,558 | | | | Failure. |
| Do | do | 1,803 | | | | Do. |
| Bruceville | McLennan | 1,560 | 6 | | +125 | |
| Do | do | 1,565 | | 139 | Flows. | Soft water; temp. 95°. |
| Bryan (16 miles south). | Burleson | 870 | 2 | 22 | Flows. | |
| Bryan (12 miles from) | do | 835 | 2 | 35 | +30 | Temp. 85°. |
| Do | do | 635 | 2 | 22 | +25 | Temp. 76°. |
| Do | do | 550 | 7 | 15 | +20 | Do. |
| Burke | Angelina | 500 | | | | Salt water; abandoned. |
| Burleson (1 mile west). | Johnson | 500 | | | No flow. | Soft water. |
| Burleson (2½ miles west). | do | 465 | | Many. | No flow. | Do. |
| Call | Newton | 700 | | Several. | Flows. | |
| Calvert[1] | Robertson | 460 | | | −30 | |
| Do.[2] | do | 585-620 | 4 | Many. | Flow. | Several wells. |
| Calvert (5 miles southwest). | do | 510 | 1 | Many. | Flow. | Several wells in vicinity. |
| Do | do | 900 | 1 | | −20 | |
| Calvert (5 miles west) | do | 400 | | | −20 | |
| Do | do | 800 | | | −100 | |
| Cayote (3 miles northeast). | Bosque | 439 | | | No flow. | |
| Cedar Bayou | Harris | 558 | 3 | | | |
| Do | do | 600 | 3 | | Flows. | |
| Do | do | 727 | 3 | 5 | Flows. | Temp. 76°. |
| Do | do | 610 | 3 | 30 | | Do. |
| Cedar Hill (19 miles southwest). | Dallas | 750 | | Many. | −300 | Soft water. |
| Celina | Collin | 470 | | 7.7 | −145 | Do. |
| Celina (1 mile west) | do | 400 | | | −100 | Do. |
| China Springs | McLennan | 1,380 | | | Flows. | Another flow at 800 feet; temp. 102°. |
| Do | do | 1,100 | | 40 | Flow. | Two (?) wells. |
| Cisco | Eastland | 1,680 | 8 | | −25 | Salt water. |
| Clarksville | Red River | 1,060 | | | Flows. | Brackish water; abandoned. |
| Do | do | +1,050 | | | −10 to −12 | Salty water. |
| Do | do | +1,200 | | | | Abandoned. |
| Cleburne | Johnson | 970-1,003 | | 70 | −40 to −70 | Many wells. |
| Cleburne (6 miles south). | do | 520 | | Many. | No flow. | Soft water. |
| Cleburne (5 miles southeast). | do | 568 | | | −168 | Do. |
| Cleburne (3 miles southwest). | do | 420 | | Many. | −160 | Do. |
| Cleburne (3 miles northwest). | do | 424 | | Many. | −274 | |
| Clifton | Bosque | 640 | | 170 | Flows. | |
| Do | do | 700 | | Many. | | Temp. 70°. |
| Clifton (3 miles N.) | do | 662 | | 220 | Flows. | Temp. 84°; soft water. |
| Clifton (1 mile west) | do | 715 | | 60 | Flows. | Soft water. |
| Clifton (3½ miles N.) | do | 670 | | 170 | Flows. | |
| Clifton (8 miles SE.) | do | 840 | | 170 | Flows. | |
| Clifton (3 miles W.) | do | 612 | | | Flows. | Do. |
| Clifton (1 mile W.) | do | 687 | | | Flows. | Do. |
| Clifton | do | 700 | | Many. | | Temp. 70°. |
| Clifton (three-fourths mile west). | do | 700 | | 11 | Flows. | Soft water. |
| Colorado[3] | Mitchell | 1,120 | | | | Several deep salt wells. |
| Commerce | Hunt | 2,300 | | | | |
| Comstock (20 miles from).[4] | Valverde | 569 | | | | |

[1] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 266, Washington, 1890.
[2] Record, Texas Geol. Surv., 4th Ann. Rept., 1892, p. 169.
[3] Record, U. S. Geol. Surv., 18th Ann. Rept., 1896-97, Part II, p. 265, Washington, 1898.
[4] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 284, Washington, 1890.

## TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Coperas Cove | Coryell | 1,865 | | | −100 | Brackish water. |
| Coperas Cove (4 miles north). | do | 500 | | Many. | No flow. | Salty water. |
| Coperas Cove | do | 1,875 | | | −475 | |
| Cornhill | Williamson | 404 | | | −282 | |
| Corpus Christi | Nueces | | | | | |
| Do | do | 1,765 | | 50 | | Mineral water at about 600 feet only. |
| Do | do | 525 | | 300 | | |
| Do | do | 560 | | 100 | | |
| Corsicana | Navarro | | | | | |
| Corsicana (3 miles west). | do | 2,500 | | | | |
| Corsicana | do | 2,477 | | | | Several wells. |
| Do | do | 1,000–1,200 | | | | Many oil wells. |
| Do | do | 2,483 | | 208 | +150 | Water, gas, and oil; temp. 126°. |
| Do | do | 2,150 | | 208 | | Oil at 1,100 feet. |
| Do | do | 2,487 | | Many. | | |
| Do | do | 2,500 | | +194.4 | +85 | Temp. 126° F. |
| Do | do | 1,035 | | | | Oil well. |
| Corsicana (3 miles west). | do | 2,300 | | | | |
| Coryell (3 miles east) | Coryell | 940 | | Many. | −50 | Soft water. |
| Cotulla[1] | Lasalle | 825 | | | Flows. | Bad water. |
| Do | do | 1,010 | | 55.5 | | |
| Do | do | 852 | | | | |
| Do | do | 800 | | 2 | Flows. | Do. |
| Do | do | 1,008 | | Many. | +6 | Temp. 86° F.; alkaline-saline water. |
| Cotulla (8 miles S.) | do | 600 | | | −100 | Bad water. |
| Crawford (4 miles west). | McLennan | 1,000 | | 31 | | Soft water. |
| Do | do | 1,040 | | 31 | | Do. |
| Do | do | 945 | | 140 | | Temp. 72° F.; two wells. |
| Do | do | 1,060 | | 50 | | Soft water. |
| Crockett | Houston | 630 | 5–3 | Many. | −190 | |
| Crowley | Tarrant | 486 | | 3 | No flow. | Soft water. |
| Crowley (3 miles northwest). | do | 446 | | | −150 | Do. |
| Crowley (7 miles southwest). | do | 430 | | | No flow. | Do. |
| Crowley (2 miles from). | do | 484 | 2 | | −134 | Do. |
| Cyrus (1 mile east) | Bosque | 1,000 | | Many. | Flows. | |
| Dallas (1 mile east) | Dallas | 850 | | 70 | Flow. | Two wells. |
| Dallas (6 miles west-northwest). | do | +400 | | Many. | Flows. | |
| Dallas | do | 790–1,000 | | Many. | Flows. | Numerous wells. |
| Do | do | 718 | | | Flows. | Much soda in water. |
| Do | do | 700 | | 12 | Flows. | |
| Dallas (City Park) | do | 672 | | 15 | Flows. | |
| Dallas | do | ±2,500 | | | | |
| Dallas (1 mile south) | do | 850 | | 70 | Flow. | Two wells. |
| Dallas (6 miles west-northwest). | do | ±400 | | Many. | Flows. | |
| Davenport | Guadalupe | 810 | | | −180 | Good water. |
| Del Rio[2] | Valverde | 760 | | | −60 | Mineral waters. |
| Del Rio (30 miles N.) | do | 475 | | | −300 | |
| Del Rio (3 miles S.) | do | 460 | | | Flows. | Sulphur water, |
| Denison (1 mile S.)[3] | Grayson | 1,800 | 2½ | | | Abandoned. |
| Denton | Denton | 460 | | | +15 | |
| Do | do | 550 | 6 | 6 | +20 | |
| Do | do | 600 | | Few. | | |
| Do | do | 620 | | 8 | Flows. | |
| Do | do | 600 | | | Flows. | |
| Do | do | 606 | | 28 | Flows. | |
| Derby | Frio | 540 | | Many. | −35 | |
| Dickinson[4] | Galveston | 600 | 3 | 14 | Flows. | |
| Do | do | 624 | 3 | 40 | Flows. | |
| Dickinson (3 miles W.) | do | 700 | 3 | 34.7 | Flows. | |
| Dickinson (one-fourth mile west). | do | 588 | 1 | | Flows. | |
| Dryden | Pecos | 1,797 | 7⅝–4 | 18 | −600 | |

[1] Texas, Geol. Surv., 2d Ann. Rept., 1891, p. 71; Analysis, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p 272, Washington, 1890.
[2] U S. Geol. Surv., 18th Ann. Rept., 1896–97, Part II, pp. 265, 299, Washington, 1898.
[3] Record, ibid., 21st Annual Report, 1899–1900, part 7, p. 197, Washington, 1901.
[4] Analysis, Texas Geol. Surv., 4th Ann. Rept., 1892, p. 104.

## TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Dryden | Pecos | 590 | | Many. | −539 | |
| Dublin | Erath | 400 | | | −8 | |
| Eagleflat | El Paso | 680 | | | | No water. |
| Eagleford | Dallas | 417 | | 800 | +35 | Soft water. |
| Eagle Pass[1] | Maverick | 1,508 | | | | Salty water. |
| Do | do | 400 | | | | Abandoned. |
| Eastland[2] | Eastland | 500 | | | | Abandoned. |
| Do | do | 1,300 | 6 | | No flow. | Salt water. |
| Do | do | 400 | | | Flows. | Mineral water. |
| Eden | Concho | 987 | | 7 | Flows. | Salty water. |
| Do | do | 800 | | | | Oily water; abandoned. |
| Eddy | McLennan | 1,565 | | 208 | Flows. | Soft water. |
| El Paso (NW. of) | El Paso | 800 | | | | In granite; no water. |
| El Paso (10 miles NE.)[3] | do | 621 | | | −215 | |
| Encinal | Webb | 900 | | | −200 | Good water. |
| Enon | Tarrant | 442 | | | −142 | |
| Enon (1 mile west) | do | 430 | | 5 | −60 | |
| Enon (3 miles NE.) | do | 460 | | Many. | −90 | Soft water. |
| Estelle | Dallas | 970 | | | Flow. | Soft water. |
| Eulogy | Bosque | 780 | | 34 | Flows. | |
| Do | do | 529 | | 30 | Flows. | |
| Eulogy (1 mile north) | do | 475 | | | Flows. | Do. |
| Eulogy (three-fourth mile north) | do | 460 | | 10 | Flows. | |
| Eulogy (one-fourth mile west). | do | 430 | | 68 | Flows. | Do. |
| Fairwood[4] | Galveston | 575 | 3 | 50 | Flows. | Temp. 78½°. |
| Farr (2 miles south) | McLennan | 1,065 | | 10 | Flows. | |
| Ferris | Ellis | 1,360 | | 89 | Flows. | |
| Finlay[5] | El Paso | 1,080 | 8 | | | Bad water at 396 feet; abandoned. |
| Forreston | Ellis | 400 | | | | No water. |
| Fort Bliss Station | | 403 | 4½ | Many. | −130 | |
| Fort Worth[6] | Tarrant | | | | | |
| Do | do | 484 | | | −50 | |
| Do | do | 450 | | | | |
| Do | do | 465 | | 30 | Flows. | |
| Do | do | 950–1,400 | 10 to 4 | 140 | Flow. | Several wells. |
| Do | do | 4,000 | | | | No flow below 1,200 feet; temp. 140° at 3,250 feet. |
| Do | do | 760 | | | | |
| Fort Worth (3 miles north). | do | 1,200 | | | | |
| Fort Worth (10 miles east). | do | 480 | 4½ | +208 | | |
| Fort Worth (12 miles southeast). | do | 534 | | | −450 | |
| Fort Worth (7 miles south).[7] | do | +400 | | | | |
| Fowler (1½ miles N.) | Bosque | 735 | | 123 | Flows. | Soft water. |
| Frankfort (2 miles southwest). | Collin | 442 | | | −50 | Salty water. |
| Franklin | Robertson | 1,200 | | | No flow. | |
| Freeland (2 miles S.) | Johnson | 500 | | 15 | Flows. | Soft water. |
| Freeland (2½ miles S.) | do | 618 | | 18 | Flows. | |
| Freeland (1½ miles S.) | do | 585 | | 65 | Flows. | Good water. |
| Freeland (1½ miles W.) | do | 548 | | 12 | Flows. | Soft water. |
| Gainesville | Cooke | ±1,250 | | | — 40 | In progress. |
| Do | do | 850 | | 243 | — 10 | |
| Do | do | 480 | | | — 40 | |
| Do | do | 405 | | 69 | No flow. | |
| Do | do | 632 | | Many. | — 7 | |
| Do | do | 700 | | | — 30 | |
| Do | do | 850 | | 6 | | |
| Galveston[8] | Galveston | 3,070 | 22–6 | Many. | Flows. | Brackish water at various depths to bottom. |
| Do | do | 1,346 | | 400 | Flows. | Salty water. |

[1] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 266, Washington, 1890.
[2] Ibid., pp. 268, 269.
[3] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 297, Washington, 1890.
[4] Analysis, Texas Geol. Surv., 4th Ann. Rept., 1892, p. 102.
[5] Analysis, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 272, Washington, 1890.
[6] Record, Artesian Waters of Texas west of 97th meridian, by R. T. Hill, 52d Congress, 1st session, Senate Ex. Doc. No. 41, Part 3, pp. 105–106, Washington, 1893.
[7] Fifty-first Congress, 1st session, Senate Ex. Doc. No. 222, p. 270, Washington, 1890.
[8] Records, analysis, etc., Texas Geol. Surv., 4th Ann. Rept., 1892, pp. 87–101; U. S. Geol. Survey, 21st Annual Report, 1899–1900, part 7, pp. 402–406, Washington, 1901.

## TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet* | *Inches.* | *Gallons.* | *Feet.* | |
| Galveston | Galveston | 810–973 | | Many. | Flow. | Several wells; water too salty. |
| Galveston (2½ miles west). | do | 1,365 | | 250 | Flows. | Temperature 84°. |
| Gatesville | Coryell | 500–550 | 6 | 2–20 | Flow. | Several wells. |
| Do | do | 700 | | 175 | | |
| Do | do | 475 | | | No flow. | Soft water. |
| Gatesville (8 miles W.) | do | 612 | | | | Do. |
| Gatesville (6 miles southeast). | do | 558 | | 4 | Flows. | |
| Georgetown (2 miles east). | Williamson | 520 | | 15 | | |
| Godley (5 miles S.) | Johnson | 420 | | Many. | No flow. | Do. |
| Goldthwaite | Mills | 563 | 10–7 | | — 20 | |
| Do | do | 600 | | | | |
| Do | do | 563 | 10–7 | | — 20 | |
| Gonzales | Wilson | 1,400 | | 15 | + 60 | Flows at 650, 950, 1,300, and 1,400 feet. |
| Do | do | 625 | 10–8 | 30 | Flows. | |
| Gonzales (1 mile N.) | do | 1,135 | | Many. | — 60 | |
| Gordon | Palo Pinto | 485 | | 1 | + 23 | Salt water. |
| Do | do | 498 | 1 | 1 | + 23 | Salt water and gas. |
| Grapevine | Tarrant | 423 | | | No flow. | Soft water. |
| Gravis (1½ miles S.) | Williamson | 412 | | 3 | —96 | Sulphur water. |
| Greenway (one half mile west). | Johnson | 590 | | 45 | | Soft water. |
| Greenway (one-half mile northwest). | do | 602 | | 22 | Flows. | Do. |
| Hamilton | Hamilton | 425 | | | | Water only at 350 feet to —8 feet. |
| Handley | Tarrant | 509 | | | —25 | Soft water. |
| Hallettsville | Lavaca | 300–560 | | | Flow. | |
| Harmosa | McLennan | 1,730 | | 139 | | Soft water; temp. 103°. |
| Hartley | Hartley | 410 | 5 | 17 | | |
| Haskell | El Paso | 2,029 | 12–7⅝ | Few. | No flow. | |
| Haslett (1 mile S.) | Tarrant | 430 | | | —255 | Soft water. |
| Haslett (3 miles SE.) | do | 480 | | 3 | —258 | |
| Hearne | Robertson | 740 | | | Flows. | Many wells in vicinity. |
| Do | do | 400–450 | 4 | | Flow. | Several wells. |
| Do | do | | | | | |
| Do | do | 450–700 | 2 | 3 to 10 | +10–+40 | Do. |
| Hearne (8 miles S.) | do | 300–700 | | 3 | Flows. | |
| Hearne (12 miles northwest). | do | 300–700 | | 3 | Flows. | |
| Heffron | Galveston | 480 | 3 | 52 | +16 | Temp. 60° + |
| Hemming | Cooke | 426 | | 100 | Flows. | Soft water. |
| Hico | Hamilton | 1,365 | 12 | | —125 | Water at 210, 300, 600, and 900 feet. |
| Do | do | 1,200 | | | No flow. | |
| Hidalgo | Hidalgo | 700 | | | —100 | |
| Hillsboro | Hill | 1,800 | | | Flows. | |
| Do | do | 1,762 | | 34.7 | Flows. | |
| Do | do | 500 | | | | Failure. |
| Hitchcock[1] | Galveston | 726 | | 66 | Flows. | Temp. 77°; many wells in vicinity. |
| Hitchcock (1½ miles northwest). | do | 710 | | 100 | Flows. | Temp. 77°. |
| Do | do | 768 | | 48 | Flows. | Temp. 78°. |
| Holland (10 miles S.) | Bell | 1,800 | | 10 | Flows. | Salt water. |
| Honeygrove | Fannin | 1,700 | | Many. | | Strong mineral water. |
| Do | do | 1,650 | | Many. | — 50 | Do. |
| Do | do | 1,500 | | | | |
| Do | do | 1,000 | | | —300 | Salty water; not in use. |
| Do | do | 1,200 | | | No flow. | |
| Hondo | Medina | 1,000 | | | | No water. |
| Do | do | 1,500 | | Many. | —175 | |
| Houston | Harris | 493 | 8 | 120 | Flows. | |
| Do | do | 564 | 8 | 130 | Flows. | |
| Do | do | 850 | 5 | 200 | Flows. | |
| Do | do | 500 or less. | | | Flows. | Fine water. |
| Do | do | 700 | | | | |
| Houston (3 miles from). | do | 600 | | 42 | | Temp. 70°. |
| Hubbard | Hills | 3,166 | | | Flows. | |

[1] Analyses, etc., Texas Geol. Surv., 4th Ann. Rpt., 1892, pp. 102–103.

## TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Hueco | El Paso | 431 | | | | Bad water; abandoned. |
| Hueco (20 miles NNE.) | do | 572 | | Many. | | Bad water. |
| Humble | Harris | 606 | 3½ | 50 | Flows. | Fresh water. |
| Huntsville | Walker | 2,210 | 9-3 | Many. | −100 | |
| Hurst Lake | Coryell | 500 | | | | |
| Italy | Ellis | 1,400 | | ¼ | − 10 | Soft water. |
| Itasca | Hills | 1,800 | | | Flows. | |
| Do | do | 1,680 | | 160 | + 35 | |
| Jefferson | Marion | 802 | | Few. | Flows. | Sulphur water. |
| Joshua (3 miles west) | Johnson | 525 | | | No flow. | Soft water. |
| Joshua (6 miles NW.) | do | 424 | | | −189 | |
| Kaufman | Kaufman | 450 | | | | Failure. |
| Kaufman (1 mile NW.) | do | 600 | | | | Do. |
| Kearnes | Kearnes | 1,800 | | | | Do. |
| Keechi | Jack | 400 | | ¼ | −400 | Soft water. |
| Keene | Johnson | 750 | | | −300 | Do. |
| Keller | Tarrant | 400 | | | | |
| Do | do | 457 | | 50 | −50 | |
| Do.[1] | do | 430 | | | | |
| Keno | Liberty | 700 | | | | No water below 90 feet; abandoned. |
| Kerrville | Kerr | 1,325 | | | −75 | Good water at 750 feet. |
| Kerrville (9½ miles northeast).[2] | do | 1,100 | | Several. | −55 | Granite below 180 feet. |
| Killeen | Bell | 606 | | | −60 | |
| Kimball | Bosque | 550-630 | | | Flow. | Several wells. |
| Kimball (6 miles west) | do | 564 | | 60 | +20 | Soft water. |
| Kopperl | do | 400 | | ⅛ | Flows. | |
| Kopperl (½ mile east) | do | 600 | | 800 | Flows. | Do. |
| Kopperl | do | 625 | | 150 | Flows. | Slightly brackish. |
| Kopperl (3½ miles W.) | do | 609 | | 200 | | |
| Kopperl | do | 525 | | | Flows. | |
| Krum (2½ miles south) | Denton | 450 | | | No flow. | |
| Ladonia | Fannin | | | | | |
| Do | do | 1,033 | | | | Never completed. |
| Lancaster | Dallas | 1,057 | | | Flows. | Soft water. |
| Lanham | Hamilton | 470 | | | | Abandoned. |
| Do | do | 500 | | | | Do. |
| Do | do | 600 | | | | |
| Lanoria[3] | Mesa | 621 | | | −215 | |
| Laporte | Harris | 454 | 3 | 41 | Flows. | |
| Do | do | 440 | 3 | 80 | Flows. | |
| Laredo | Webb | 1,200 | | | No flow. | |
| Lebanon | Collin | 400 | | Many. | −100 | |
| Llano (9 miles SE.) | Llano | 500 | | | +2 | Coal prospect; abandoned. |
| Longfellow | Pecos | 683 | 8 | 20 | No flow. | |
| Lorena | McLennan | 1,495 | | Many. | Flows. | Soft water. |
| Lorena (5 miles west) | do | 760 | | Few. | Flows. | Salt water. |
| Lorena | do | 1,495 | | Many. | Flows. | Soft water. |
| Lozier | Pecos | 770 | 7⅝ | Few. | No flow. | |
| Lufkin | Angelina | 1,300 | | | | No water; abandoned. |
| Manor[4] | Travis | 2,220 | 6 | 69 | +30 | Temp. 93°. |
| Marine (½ mile NE.) | Tarrant | 1,200 | | 545 | Flows. | Temp. 78°; soft water. |
| Marlin | Falls | 3,350 | | 140 | +322 | Temp. 147°. |
| Marshall | Harrison | 1,000 | | | No flow. | |
| Maxon Springs | Buchel | 1,004 | 9½-4½ | Several. | | Not in use. |
| Maysfield | Milam | 1,356 | 4 | Many. | −34 | |
| McGregor | McLennan | 1,030 | | 139 | −10 | Soft water. |
| Do | do | 470 | | | Flows. | |
| Do | do | 991 | | 348 | | |
| McGregor (5 miles west.) | do | 490 | | Many. | −11 | Do. |
| McKinney | Collin | 1,860 | | 21 | −70 | Soft water. |
| Menardville (near) | Brown | 1,100 | | | | Found water, etc., but well now caved in. |
| Menardville | Menard | 1,175 | | | | Oil boring unsuccessful. |
| Meridian | Bosque | 450-580 | | 25-45 | Flow. | Several wells; soft water. |
| Meridian (10 miles E.) | do | 850 | | 16 | Flows. | |
| Meridian (12 miles E.) | do | 875 | | | −42 | Soft water. |

[1] Record. Artesian waters of Texas west of 97th meridian, by R. T. Hill, 52d Congress, 1st session, Senate Ex. Doc. No. 41, Part 3, p. 104, Washington, 1893.
[2] U. S. Geol. Surv., 18th Ann. Rept., 1896-97, Part II, p. 271, Washington, 1898.
[3] Record, 51st Congress, 1st session, Senate Ex. Doc. 222, p. 297.
[4] Record, U. S. Geol. Surv., 18th Ann. Rept., 1896-97, Part 2, pp. 285-286, Washington, 1898.

## TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Merkel | Taylor | +2,000 | | | | |
| Miami | Roberts | −500 | | | | Several wells in county. |
| Midlothian | Ellis | 464 | | | −200 | |
| Milford | do | 2,018 | | | Flows. | Mineral water?. |
| Mineola[1] | Wood | 1,200 | 6-3 | | −40 | |
| Moody | McLennan | 1,508 | | 69 | No flow. | Soft water. |
| Do | do | 1,300 | | | No flow now. | |
| Do | do | 1,450 | | | −15 | |
| Morgan[2] | Bosque | 600 | | 100 | Flows. | Soft water. |
| Do | do | 580-620 | | 20-150 | Flow. | Several wells; soft water. |
| Morgan (1 mile SE.) | do | 575 | | 170 | Flows. | Soft water. |
| Morgan | do | 800 | | 50 | Flows. | |
| Morgan (5 miles east) | do | 780 | | 40 | Flows. | |
| Morgan (12 miles E.) | | 501 | | 100 | Flows. | |
| Morris Ranch[3] | Gillespie | 1,100 | | | −55 | |
| Mound (2 miles NE.) | Coryell | 697 | | | −5 | Mineral water. |
| Mountain Peak (⅝ mile southwest). | Ellis | 435 | | Many. | No flow. | Soft water. |
| Mumford | Robertson | 300-1,000 | | 2-12 | | Several wells. |
| Myers | Burleson | 440 | 1-2 | 2 | | Temp. 60°. |
| Do | do | 860 | 4-2 | 30 | +20 | Temp. 90°. |
| Myrtle Springs | Van Zandt | 650 | | | | Unsuccessful. |
| Navasota[4] | Grimes | 830 | | | To surface. | |
| Navasota (16 miles N.) | do | 999 | | Many. | Flows. | |
| Newlin Station | Hall | 550 | 6 | | | Four layers of salt water; abandoned. |
| Neri (2 miles south) | Hood | 415 | | | No flow. | Soft water. |
| Newark | Wise | 410 | 5 | 1 | +14 | Temp., 65°. |
| New Boston | Bowie | 1,200 | | | −75 | |
| Norse (4 miles SW.) | Bosque | 622 | | | No flow. | Soft water. |
| North Galveston | Galveston | 575-1,590 | 3 | 70 each. | Flow. | Several wells. |
| Oak Grove (1 mile S.) | Tarrant | 500 | | 3½ | −72 | Soft water. |
| Ocee (1 mile east) | McLennan | 1,098 | 6 | 160 | Flows. | Do. |
| Odessa | Ector | 830 | 8 | | | Abandoned. |
| Oglesby (2½ miles northwest-west).[5] | Coryell | 500 | | | No flow. | Soft water. |
| Orphans' Home Station (2 miles SE). | Dallas | 685 | | | No flow. | Very salty water. |
| Orphans' Home Station. | do | 1,230 | | 20 | −40 | Mineral water. |
| Palestine | Anderson | 650 | 6 | Few. | −200 | |
| Palestine (1½ miles) | do | 444 | 8-6 | 121 | No flow. | Several wells. |
| Palmer | Ellis | 1,154 | | + 9 | Flows. | Soft water. |
| Do | do | 1,154 | | | Flows. | Do. |
| Do | do | 1,178 | | 83 | Flows. | Do. |
| Panhandle City | Carson | 600 | | | | Unsuccessful. |
| Paris | Lamar | 444 | | | | Abandoned. |
| Do | do | 1,350 | | Many. | −5 | |
| Park Springs | Wise | 400 | 6 | Many. | −60 | |
| Pearsall | Frio | 600 | | 15 | Flows. | |
| Do | do | 400 | | 30 | Flows. | |
| Do | do | 650 | | 30 | Flows. | |
| Do | do | 620 | | | −20 | |
| Pearsall (15 miles E.) | do | | | | Flow. | Several wells. |
| Pearsall (20 miles SE.) | do | (?) | | | | |
| Pecangrove | Coryell | 590 | | | Flows. | |
| Pecos[6] | Pecos | 683 | | 20 | | |
| Do | do | 987 | | 28 | | Good water. |
| Do | do | 1,797 | | 16 | | Do. |
| Do | do | 770 | | 16 | | |
| Pecos (4 miles W.) | Reeves | 400 | | | No flow. | |
| Pierce Station | Wharton | 850 or 900 | | | | |
| Pilotpoint | Denton | 937 | | 17 | −25 | Soft water. |
| Pilotpoint (8 miles northwest). | Cooke | 426 | | 1 | | Do. |
| Port Arthur | Jefferson | ±800 | 5 | | Flows. | Mineral water; temp. 80°. |
| Pottsboro (7 miles west). | Grayson | ±500 | | Many. | Flows. | Pure water. |
| Prosper | Collin | 470 | | Many. | No flow. | Soft water. |

[1] Geol. Surv. of Texas (Report on the Brown coal and lignite of Texas), pp. 132-135, 1892.
[2] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 269, Washington, 1890.
[3] Record, U. S. Geol. Surv., 18th Ann. Rept., 1896-97, Part II, p. 272, Washington, 1898.
[4] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 265, Washington, 1890.
[5] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 283, Washington, 1890.
[6] Record, etc., U. S. Geol. Surv., 18th Ann. Rept., 1896-97, Part II, p. 267, Washington, 1898.

## TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Prosper (¾ mile east) | Collin | 660 | | 4 | —244 | Soft water. |
| Quintana | Brazoria | 650 | | | | |
| Randol (1 mile NE.) | Tarrant | 546 | | | —10 | Sulphur water. |
| Randol (one-half mile southwest.) | do | 525 | | 156 | Flows. | |
| Randol (3 miles SW.) | do | 420 | | ½ | Flows. | Soft water. |
| Randol (one-half mile north). | do | 505 | 4 | | Flows. | Do. |
| Refugio [1] | Refugio | 853 | | 104 | Flows. | |
| Refugio | do | 956 | | 104 | Flows. | |
| Do | do | 1,000 | | 347 | Flows. | |
| Rendon (2 miles N.) | Johnson | 535 | | Many. | No flow. | Do. |
| Riovista (1 mile NE.) | do | 460 | | Many. | No flow. | Do. |
| Riovista (3 miles E.) | do | 540 | | | —176 | Do. |
| Roanoke (west.) | Denton | 476 | | | —33 | |
| Roanoke | do | 400–600 | | 40–50 | Flows. | Several wells. |
| Roanoke (one-half mile south). | do | 505 | | | —16 | |
| Rocksprings | Edwards | 400 | | Many. | No flow. | Two wells. |
| Do | do | 450 | | Many. | No flow. | Do. |
| Rogers | Bell | +1,600 | | | Flows. | |
| Roundrock | Travis | 400 | | 1 | No flow. | |
| Roundrock | Williamson | 1,400 | | | —4 | |
| Rusk | Cherokee | 620 | | | | Abandoned. |
| Sabinal | Walde | 529 | | | | |
| Salado (5 miles SE.) | Bell | 412 | | | —397 | |
| San Angelo | Tom Green | 960 | | | | |
| San Antonio [2] | Bexar | 822–1,200 | | 55–200 | | Numerous wells. |
| Do | do | 1,250 | | | | |
| Do | do | 465 | | 55 | | |
| San Antonio (1 mile west). | do | 835 | | 55 | | |
| San Antonio | do | | | | | |
| Do | do | 870 | | 861 | | |
| San Antonio (3 miles southeast). | do | 1,100 | | | | Hot sulphur water. |
| San Antonio (3 miles south). | do | 1,900 | | 555 | | |
| San Antonio (6 miles southeast). | do | 2,215 | | | | Water at 1,800 feet. |
| San Antonio (2 miles south). | do | 1,900 | | 555 | —84 | |
| San Antonio | do | 500 | | | | Several wells. |
| Do | do | 650–715 | | 500–700 | | Do. |
| San Antonio (2½ miles northwest). | do | 540 | | | | |
| San Antonio | do | 630 | | | | |
| Do | do | 750–780 | | 1,000 | | Do. |
| Do | do | 450 | | | | |
| Do | do | 657 | | 250 | | Do. |
| San Antonio (3 miles north). | do | 583 | | | —50 | |
| Sanderson [3] | Pecos | 987 | 7⅝ | 30 | No flow. | |
| Sanderson | do | 2,000 | | | | No water. |
| San Marcos [4] | Hays | 1,490 | | 6 | Flows. | Waters at 128, 191, 652, 1,178, 1,291, 1,345, and 1,475 feet. |
| Santa Tomas | | | | | | |
| Sherman | Grayson | 632 | | | | Fine water. |
| Do | do | 915 | | | | |
| Do | do | 2,500 | | Many. | —40 | |
| Do | do | 660 | | | | Several wells. |
| Sherman (18 miles N.) | do | 480 | | | No flow. | |
| Sierra Blanco [5] | El Paso | 943 | 5⅛ | Many. | No flow. | Bad water. |
| Sonora | Sutton | 480 | | | | Several wells. |
| Do | do | 800 | | | | Oil. |
| South Bosque (3 miles west). | McLennan | 450 | | 1 | | |
| Spofford Junction | Kenney | 1,700 | | | | Failure. |
| Stony (1½ miles south) | Denton | 447 | | 3 | Flows. | Soft water. |
| Strong Junction | Harris | 450 | 3 | 48 | +9 | |
| Sugarland | Fort Bend | 600–1,550 | 3–4 | | Flow. | Several wells |
| Do | do | 1,550 | 8–4 | 104 | +9 | |
| Surfside | Brazoria | 1,070 | 4 | 215 | Flows. | |
| Taylor | Williamson | 1,400 | | 104 | Flows. | |

[1] Records, 51st Congress, 1st session, Senate Ex. Doc. No. 222, pp. 266–267, Washington, 1890.
[2] Records, etc., U. S. Geol. Surv., 18th Ann. Rept., 1896–97, Part II., pp. 290–297, Washington, 1898.
[3] Record, U. S. Geol. Surv., 18th Ann. Rept., 1896–97, Part II, p. 274, Washington, 1898.
[4] Ibid., pp. 287–290.
[5] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 296, Washington, 1900.

## TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Taylor | Williamsom | 2,800 | | 27 | Flow. | Two wells; poor water. |
| Do | do | 1,500 | | 15 | +40 | Several wells |
| Temple (1 mile west) | Bell | 1,850 | | Many. | Flow. | Temp. 91°. |
| Do | do | 1,800 | | Few. | Flows. | |
| Terrell[1] | Kaufman | 2,200 | 8 | 70 | −50 | Good water. |
| Texas City | Galveston | 725 | | +104 | +16 | |
| Do | do | 900 | | +104 | +16 | |
| The Grove | Coryell | 900 | | 680 | −13 | |
| Thorndale | Milan | 1,790 | | | | No water. |
| Do | do | 3,200 | | | | Do. |
| Thurber[2] | Erath | 3,050 | | | No flow. | |
| Tilden | McMullen | 475 | 4¼ | 8 | Flows. | Salty water. |
| Timber | Tarrant | 576 | | 2½ | | Do. |
| Tobey | Atascosa | 1,200–1,300 | | | | |
| Torbert | El Paso | 1,100 | 8–5⅝ | | | Abandoned. Small amount of fair water at 696 feet. |
| Toyah | Reeves | 834 | 9–3 | 300 | Flows. | Sulphur water. |
| Do | do | 514 | 12 | 9 | Flows. | |
| Trinity | Trinity | +900 | | Few. | | Salty, sulphur water |
| Trinity Mills (4 miles east). | Dallas | ±468 | | | −25 | |
| Do | do | 415 | | | −25 | |
| Troy | Bell | 1,472 | 8 | | Flows. | Soft water. |
| Do | do | 1,474 | | 14 | Flows. | |
| Do | do | 1,464 | | 243 | Flows. | Do. |
| Turtle Bayou | Chambers | 850 | 4 | 139 | Flows. | |
| Do | do | 900 | 4 | | | |
| Tyler | Smith | 1,150 | 6 | | | In progress, 1901. |
| Uvalde | Uvalde | 512 | | Few. | −85 | |
| Do | do | 1,000 | | | No flow. | |
| Valda | Polk | 420 | 4 | 45 | Flows. | |
| Valentine | Presidio | 1,280 | | | | No water. |
| Do | Jeff Davis | 1,245 | 5⅛–5 | Many. | No flow. | |
| Valeo | Hidalgo | 1,004 | 8 | | | No water below. |
| Valley Mills | Bosque | 805 | | | Flows. | |
| Valley Mills (5 miles north). | do | 870 | | | Flows. | Soft water. |
| Valley Mills (1 mile north). | do | 706 | | | Flows. | |
| Valley Mills (5 miles north). | do | 877 | | | Flows. | Do. |
| Van Horn | El Paso | 600 | 5⅛ | | −500 | Several wells. |
| Velasco | Brazoria | 1,100 | 8 | 694 | Flows. | |
| Vernon[3] | Wilbarger | (?) | | | | |
| Do | do | (?) | | | | |
| Victoria | Victoria | 815–956 | | 70–200 | Flow. | Three wells. |
| Waco[4] | McLennan | 1,812–1,862 | 8–4 | 51–400 | Flow. | Numerous wells. Temperature, 103°. |
| Waco (5 miles west) | do | 1,470 | 4⅛ | 347 | Flows. | Pure water. Temperature, 90°. |
| Waldo (2 miles south) | Coryell | 423 | | | −85 | Saline water. |
| Wallisville | Chambers | 400 | | 70 | | |
| Walters | Travis | 700 | | | | |
| Waxahachie | Ellis | 990 | | | Flows? | |
| Do | do | 1,700 | | | −15 | Soft water. |
| Waxahachie (6 miles southwest). | do | 700 | | | −125 | |
| Weatherford[5] | Parker | 500 | | | −50 | |
| Do | do | 402 | | 69 | −250 | Good water. |
| Do | do | 440 | | | | |
| Do | do | 488 | | | −250 | |
| Webb | Tarrant | 800 | | | −160 | Poor water. |
| West | McLennan | 1,690 | | 208 | Flows. | |
| Wexia | Limestone | 1,333 | 4½ | | | Oil or gas prospect; abandoned; some water at 512 feet. |
| Whitesboro | Grayson | +800 | | | No flow. | |
| Whitney | Hill | 1,575 | | | +40 | |
| Do | do | 1,000 | | 139 | Flows. | |
| Do | do | 438 | | | 430 | |
| Wichita Falls (1½ miles south). | Wichita | 800 | | | | Salt water. |

[1] Record, Artesian waters in Texas west of 97th meridian, by R. T. Hill, 52d Congress, 1st session, Senate Ex. Doc. No. 41, part 3, p. 99. Another authority gives 2,700 feet as depth.

[2] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 270, Washington, 1890.

[3] Analysis, Texas Geol. Surv., 4th Ann. Rept., 1892, p 105.

[4] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, pp. 265, 269, Washington, 1890. Analysis, ibid., p. 271.

[5] Record, 51st Congress, 1st session, Senate Ex. Doc. No. 222, p. 266, Washington, 1890.

TEXAS—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Wills Point | Van Zandt | 1,100 | 6 | | To surface. | |
| Youngsport | Bell | 404 | | 1 | Flows. | |
| Do | do | 417 | | ½ | Flows. | |
| Youngsport (1¼ miles east). | do | 433 | | ¼ | Flows. | |
| Youngsport (one-half mile north). | do | 444 | | 1 | Flows. | |
| Zimbi[1] | Harris | 480 | | | | No water; abandoned. |
| Do | do | 520 | | | | Do. |

## PRINCIPAL PUBLICATIONS RELATING TO THE UNDERGROUND WATERS OF TEXAS.

Report of F. E. Roesler, Division Field Agent for Texas, letter from the Secretary of Agriculture transmitting a report on the preliminary investigations to determine the proper location of artesian wells within the area of the 97th meridian and east of the foothills of the Rocky Mountains, 51st Congress, 1st session, Senate Ex. Doc. No. 222, pp. 243–319, Washington, 1890.

Report of E. T. Dumble on the existence of artesian waters west of the 97th meridian, etc., 51st Congress, 1st session, Senate Ex. Doc. No. 222, pp. 99–102, Washington, 1890.

Preliminary reports on the artesian wells of the Gulf Coastal Slope, by J. A. Singley, Texas Geological Survey, 4th Annual Report, 1892, pp. 85–113, Austin, 1893.

On the occurrence of artesian and other underground waters in Texas, etc., west of the 97th meridian, by R. T. Hill, Report on Irrigation, 52d Congress, 1st session, Senate Ex. Doc. No. 41, part 3 (Final Geological Reports), pp. 41–166, plates, Washington, 1893.

Geology of the Edwards Plateau and Rio Grande Plain adjacent to Austin and San Antonio, Tex., with reference to the occurrence of underground waters, by Robert T. Hill and T. Wayland Vaughan, United States Geological Survey, Eighteenth Annual Report, 1896–1897, part 2, pp. 193–321 and plates, Washington, 1898.

Geography and geology of the Black and Grand prairies, Texas, with detailed descriptions of the Cretaceous formations and special reference to artesian waters, by Robert T. Hill, United States Geological Survey, Twenty-first Annual Report, 1899–1900, part 7, pp. 1–649, Washington, 1901.

## UTAH.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Bountiful | Davis | 400 | | 4–60 | | |
| Bountiful (2 miles north of west). | do | 580 | | | | No water. |
| Layton | do | 500 | 4½–1¼ | Few. | | |
| Paragonah | Iron | 412 | 2 | | | Cool water. |
| Salt Lake City | Salt Lake | 550 | 8 | 500 | | |
| Do | do | 1,105 | 8 | 350 | | |
| Salt Lake City (12 miles north). | | 500–750 | | | | Several wells. |
| Smithfield | Cache | 410 | | 3 | | |

[1] Record, etc., Texas Geol. Surv., 4th Ann. Rpt., 1892, p. 107.

## UTAH—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Spanish Fork | Utah | 420 | 2 | 60 | | |
| Do | do | 400 | 2 | 5 | | |
| Do | do | 400 | 2 | 70 | | |
| Do | do | 410 | 2 | 40 | | |
| Sulphur Springs | | 650 | | | No flow. | |
| Vernal | Uinta | 975 | | | | Abandoned. |
| Do | do | 900 | 8 | | | Surface water only. |

## VIRGINIA.

| | | | | | | |
|---|---|---|---|---|---|---|
| Alexandria (brewery). | Alexandria | 430 | 8 | 90 | | |
| Alexandria (ice works). | do | 401 | 8 | 20 | | |
| Allisonia | Pulaski | 400–1,200 | | | | Several wells. |
| Blueridge Springs | Botetourt | 500 | 6 | 75 | | |
| Buckroe Beach | | +400 | | | | |
| Claybank | Gloucester | 538 | 1 | Several. | Flows. | |
| Cotman | Henrico | 730 | | 40 | No flow. | In granite. |
| Covington | Alleghany | 1,138 | | 400 | | |
| Crewe | Nottoway | 500 | | Few. | Flow. | |
| Delton | Pulaski | +400 | | Not any | | Abandoned. |
| Ditchley | | 620 | 1 | 2 | Flows. | |
| Dublin | Pulaski | 475 | 6 | 25 | −80 | |
| Dymer Creek [1] | Northumberland. | 507 | | | | |
| Fairport [2] | do | 662 | 8–6 | 75 | Flows. | |
| Fort Monroe [3] | Elizabeth City. | 907 | | | | Drilled in 1864; saline water flowed at 591 feet. |
| Do. [4] | do | 945 | | | Flows. | Saline water. |
| Foster Falls | Wythe | 808 | | 100 | −2 | |
| Harrisonburg | Rockingham | 420 | 8 | | −10 | |
| Gloucester | Gloucester | 600 | | Not any | | |
| Lamberts Point [5] | Norfolk | 616 | | 65 | + 7 | |
| Lancaster | Lancaster | +400 | | | No flow. | |
| Middlebrook | Augusta | 460 | 5 | 10 | −50 | |
| Newport News | Warwick | 600 | | Few. | No flow. | |
| Norfolk (Money Point). | Norfolk | 562 | | Many. | Flows. | Ferruginous water. |
| Norfolk (water works). [6] | do | 1,760 | 12–4½ | 150 | Flows. | Saline waters at several horizons. |
| Northend Point [7] | Elizabeth City. | 1,172 | | Not any | | |
| Oak Springs | | 400 | 1 | Several. | Flows. | |
| Pulaski | Pulaski | 400–600 | 6 | 100 | −10 | Several wells. |
| Do | do | 1,200 | | | | |
| Reedville | Northumberland. | 680 | 8–6 | 85 | + 3 | Temp. 78°. |
| Richmond (paper mill). | Henrico | 400 | | Several. | | |
| Richmond (Sherwood Park). | do | 900 | | Not any | | |
| Richmond (Ginter Farm). | do | 400 | | Many. | | |
| Roanoke | Roanoke | 1,200 | 6 | | − 4 | Not in use. |
| Roanes [8] | Gloucester | 716 | 6 | 50 | +23+ | |
| Stanardsville | Greene | 1,150 | | | | For oil. No success. |
| Staunton (asylum) | Augusta | 696 | 5 | 60 | −60 | |
| Staunton (mile east) | do | 460 | 5 | 9 | −30 | |
| Sandy Point [9] | Fairfax | 560 | | Many. | No flow. | Water at 270 feet; rock below. |
| Stonega | Wise | 503 | 8 | 55 | −16 | |
| Toms Creek | | | 6 | 100 | No flow. | |
| Williamsburg | James City | 876 | | Not any | do | |
| Windmill Point | Lancaster | 450 | | | | Abandoned. |

[1] Record, U. S. Geol. Surv., Bull. No. 138, p. 176.
[2] New Jersey Geol. Surv., Report for 1898, pp. 121–122.
[3] Record, Geology of the Virginias, by W. B. Rogers, New York, 1884, pp. 731–736; Am. Inst. Mining Engineers Trans., vol. 24, pp. 380–384; U. S. Geol. Surv., Bull. No. 138, p. 167.
[4] Record, etc., New Jersey Geol. Surv., Report for 1898, pp. 122–126.
[5] Record, U. S. Geol. Surv., Bull. No. 138, p. 172; New Jersey Geol. Surv., Report for 1899, pp. 87–92.
[6] Record, etc., New Jersey Geol. Surv., Report for 1899, pp. 92–102.
[7] Record, Am. Inst. Mining Eng., Trans., vol. 24, pp. 384–386.
[8] New Jersey Geol. Surv., Report for 1899, pp. 86–87.
[9] Record, U. S. Geol. Surv., Bull. No. 138, p. 178.

## PRINCIPAL PUBLICATION RELATING TO DEEP WELLS IN VIRGINIA.

Artesian Well Prospects in the Atlantic Coastal Plain Region, by N. H. Darton, United States Geological Survey, Bulletin No. 138, 232 pages, 19 plates, Washington, 1896.

## WASHINGTON.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Junction City | Jefferson | 800 | 1¼ | | Flows. | Abandoned. |
| North Yakima[1] | Yakima | 404 | 6 | Many. | Flows. | |
| Do | do | 534–835 | 8, 6 and 3. | Many. | Flow. | Several wells. |
| Do | do | 650 | | Many. | Flows. | Temp. 71°. |
| Do | do | 1,050 | 5–3½ | | +110 | |
| Do | do | 940 | 6–4 | | Flows. | |
| Pasco[2] | Franklin | 527 | 6 | Many. | Flows. | |
| | | 404 | | | | |
| Do | do | 400 | | Not any | | |
| Port Blakely | Kitsap | 410 | 4½ | 500 | —6 | |
| Prosser | Yakima | 500 | | Many? | No flow. | |
| Port Discovery | Jefferson | +800 | | | | Abandoned. |
| Roslyn | Kittitas | 700 | | Many. | Flows. | |
| Port Discovery (4 miles northeast). | | 1,230 | | | | |
| Port Townsend | Jefferson | 1,060 | | | | For coal; unsuccessful. |
| Port Townsend (3 miles from). | do | 1,500 | | | | Do. |
| Port Townsend (9 miles from). | do | 1,100 | | | | Do. |
| Port Townsend (15 miles from). | do | 700 | | | | Do. |
| Port Townsend (18 miles from). | do | 900 | | | | Do. |

## WEST VIRGINIA.

| | | | | | | |
|---|---|---|---|---|---|---|
| Alva[3] | Tyler | 2,700 | | | | For oil or gas. |
| Beaver Creek, (1 mile north). | | 417 | | | | |
| Big Flint Creek (2 miles southeast from mouth).[4] | Doddridge | 2,520 | | | | Oil well. |
| Big Otter | Clay | 1,100 | | | | Do. |
| Booher[5] | Tyler | 1,859 | | | | Several gas wells. |
| Bridgeport | Harrison | ±2,500 | | | | Two oil wells. |
| Brink (near)[6] | Wetzel | 2,753 | | | | For oil or gas. |
| Browns Mills (near)[7] | Harrison | 1,867 | | | | For oil; unproductive. |
| Buckhannon | Upshur | 2,530 | | | | For oil. |
| Buffalo (near) | Putnam | 400 | | | | |
| Bulltown | Braxton | 1,000 | | | | Salt well. |
| Burning Springs (near).[8] | Wirt | 2,010 | | | | Oil well. |
| Burnsville | Braxton | 2,750 | | | | Small flow of oil. |
| Cairo[9] | Ritchie | 2,060 | | | | For oil or gas. |
| Cairo (1½ miles northwest)[10] | do | 1,735 | | | | Do. |
| Cairo (4 miles northeast).[11] | do | 2,142 | | | | Do. |
| Cairo (8 miles south).[12] | do | 1,652 | | | | Small supply of oil. |
| Cameron (near)[13] | Marshall | 3,249 | | | | For oil or gas. |
| Center Point (near).[14] | Doddridge | 1,910–2,880 | | | | Several oil wells. |
| Central | do | 460 | 5 | | —20 | Sulphur water. |

[1] Records, U. S. Geol. Surv., Bull. No. 108, pp. 56–58, Washington, 1893.
[2] Record, ibid., p. 39.
[3] Record, W. Va. Geol. Surv., Report, vol. 1, p. 336.
[4] Ibid., pp. 332–334.
[5] Ibid., p. 358.
[6] Ibid., p. 345.
[7] Ibid., pp. 249–250.
[8] Ibid., pp. 262–263.
[9] Ibid., p. 302.
[10] Ibid., pp. 303–304.
[11] Ibid., pp. 305–307.
[12] Ibid., pp. 308–309.
[13] Ibid., p. 350.
[14] Ibid., pp. 328–332.

## WEST VIRGINIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Central City | Cabell | 2,900 | 8¼–6¼ | Many. | Flows. | Some oil. |
| Do.[1] | do | 2,770 | | | | Small flow of gas. |
| Central City (vicinity). | Boyd | 1,675–1,775 | | | | Two oil wells. |
| Charleston (waterworks).[2] | Kanawha | 1,840 | | | | For oil or gas; unproductive. |
| Charleston (8 miles above).[3] | do | 2,450 | | | | Moderate flow of gas. |
| Charleston (9 miles above).[4] | do | 2,542 | | | | Small flow of gas. |
| Charleston (13 miles southwest).[5] | do | 2,000 | | | | For oil or gas; unproductive. |
| Cherry Camp (vicinity).[6] | Harrison | 2,556–2,839 | | | | Several oil and gas wells. |
| Clarksburg | do | 1,700 | | Many. | Flows. | Some gas. |
| Clarksburg (5 miles east). | do | 2,000 | | | | |
| Clarksburg (4 miles south). | do | 750 | | Many. | Flows. | Salt water. |
| Clifton | Mason | 1,800 | | | —100 | |
| Cross Creek district[7] | Brooke | 765 | | | | For oil; unproductive. |
| Dingess Station (near).[8] | Mingo | 2,126 | | | | For oil or gas. |
| Eagle Mills (?) (near)[9] | Tyler | 2,922 | | | | Do. |
| Ellenboro (3½ miles from).[10] | Ritchie | 1,782–1,828 | | | | Several oil and gas wells. |
| Eureka (near)[11] | Pleasants | 1,348+ / 1,602 | | | | Two oil wells. |
| Fairfax (northwest of).[12] | Mingo | 1,338 | | | | For oil or gas. |
| Fairview (southwest of).[13] | Marion | 1,889 | | | | Oil well. |
| Fairview (2 miles northeast).[14] | do | 1,997 | | | | For oil; unproductive. |
| Fallsmill | Braxton | 1,000 | | | | Salt well. |
| Farmington Station (2 miles east).[15] | Marion | 2,811 | | | | For oil or gas; abandoned. |
| Friendly (near) | Tyler | | | | | Deep well for oil or gas. |
| Glenville[16] | Gilmer | 2,412 | 7⅝ | | | Oil and gas well. |
| Do | do | 800 | 2½ | | | For oil or gas; abandoned. |
| Grant district[17] | Hancock | 1,470 | | | | For oil; unproductive. |
| Do.[18] | Wetzel | 3,044 | | | | Gas well. |
| Harpers Ferry | Jefferson | 412 | | Few. | No flow. | |
| Harrisville | Ritchie | 1,600–2,000 | | | | Several oil wells. |
| Harrisville (near)[19] | do | 2,500 | | | | Oil well. |
| Hart (near)[20] | Lincoln | 3,260 | | | | For oil or gas. |
| Hebron (near)[21] | Pleasants | 2,080 | | | | Do. |
| Henry | Preston | 703 | 4 | | | |
| Highland Church (near).[22] | Monongalia Marion line. | 3,484 | 10–5 | | | Oil well. |
| Holbrook (near)[23] | Ritchie | 2,670 | | | | Oil well. |
| Hundred (near)[24] | Wetzel | 3,249 | | | | Gas well. |
| Huntington | Cabell | 2,975 | 8¼–6¼ | | | Oil prospect; unsuccessful; much water at bottom. |
| Do | do | 1,200 | 8–6 | | | |
| Iuka (near) | Tyler | | | | | Several oil wells. |
| Jarvisville | Harrison | 2,500–2,800 | | | | Numerous oil wells. |

[1] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 275–276.
[2] Record, Pa. 2d Geol. Surv., Reports, Vol. I⁵, pp. 331–332.
[3] Ibid., p. 330.
[4] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 271–272.
[5] Record, Pa. 2d Geol. Surv., Reports, Vol. I⁵, pp. 332–333.
[6] Records, W. Va. Geol. Surv., Report, vol. 1, pp. 252–255.
[7] Record, Pa. 2d Geol. Surv., Reports, Vol. I⁵, pp. 327–328.
[8] Record, W. Va. Geol. Surv., Report, vol. 1, pp 278–280.
[9] Ibid., pp. 334–335.
[10] Ibid., pp. 311–315.
[11] Ibid., pp. 351–352.
[12] Ibid., pp. 276–277.
[13] Ibid., pp. 239–241.
[14] Ibid., pp. 238–239.
[15] Record, Pa. 2d Geol. Surv., Ann. Report for 1886, part 2, pp. 782–783.
[16] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 259–260.
[17] Record, Pa. 2d Geol. Surv., Reports, Vol. I⁵, p. 328.
[18] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 340–342.
[19] Ibid., p. 319.
[20] Ibid., pp. 280–281.
[21] Ibid., p. 360.
[22] Ibid., pp. 231–232.
[23] Record, W. Va. Geol. Surv., Report, vol. 1, p. 320.
[24] Ibid., p. 349.

## WEST VIRGINIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Joetown (1 mile W.)[1] | Marion | 3,014 | | | | For oil or gas. |
| Kanawha (and vicinity).[2] | Kanawha | 1,000–2,450 | | | | Numerous salt and gas wells. |
| Kenton (?) (vicinity).[3] | Doddridge | 2,115 | | | | For oil or gas. |
| Letart (near)[4] | Mason | 2,139 | | | | Do. |
| Liberty Township[5] | Marshall | 2,934 | | | | For oil or gas, unproductive. |
| Long Run Station (near).[6] | Doddridge | 2,701 | | | | For oil or gas. |
| Lot (near)[7] | Wetzel | 2,588 | | | | Do. |
| Loudensville (5 miles north).[8] | Marshall | 1,935 | | | | Do. |
| Lightburn (vicinity) | Lewis | 2,700 | | | | For oil or gas; abandoned. |
| Little Mills (near)[9] | Tyler | 2,690 | | | | For oil or gas. |
| Macksburg (near)[10] | Noble | 1,695 | | | | Do. |
| Malden[11] | Kanawha | 1,800 | | | | Gas well. |
| Mannington (near)[12] | Marion | 1,928 | | | | For oil or gas. |
| Mannington (1 mile above).[13] | do | 3,144 | | | | Do. |
| Mannington (3 miles southwest).[14] | do | 3,042 | | | | Do. |
| Mannington (3 miles north).[15] | do | 2,895 | | | | Oil well |
| Mannington (6 miles northwest).[16] | do | 3,010 | | | | Do. |
| McKim (near)[17] | Tyler | 1,942 | | | | For oil or gas. |
| Martinsburg | Berkeley | 485 | | | | Abandoned. |
| Do | do | 450 | | | | |
| Metz (near)[18] | Marion | 2,992 | | | | For oil or gas. |
| Middlebourne (few miles below).[19] | Tyler | 1,562 | | | | Small supply of oil. |
| Middlebourne (4 miles north).[20] | do | 1,638 | | | | Oil well. |
| Miletus (near)[21] | Doddridge | 2,930 | | | | For oil or gas. |
| Do | do | 2,670 | | | | Gas well. |
| Morgantown[22] | Monongalia | 2,267 | | | | For oil or gas. |
| Moundsville (near)[23] | Marshall | 1,470 | | | | Do. |
| Moundsville (vicinity). | do | 1,400–1,413 | | | | Several oil wells. |
| Moundsville (3 miles northeast).[24] | do | 578 | | | | Numerous oil wells. |
| Murphytown (vicinity).[25] | Wood | 2,177 | | | | For oil or gas. |
| Newburg | Preston | 3,009 | | | | For gas; unsuccessful. |
| Do | do | 865 | | | −18 | |
| New Cumberland | Hancock | +600 | | | | Gas well. |
| New Cumberland (2 miles east).[26] | do | 1,198 | | | | Oil well. |
| Oxford[27] | Ritchie | 2,106 | | | | Do. |
| Oxford (7 miles above)[28] | Doddridge | 2,484 | | | | Do. |
| Parkersburg (near)[29] | Wood | 2,035 | | | | For oil or gas. |
| Parkersburg (5 miles northeast).[30] | do | 3,016 | | | | Do. |
| Peoria | Harrison | 2,300 | | | | Do. |

[1] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 345–347.
[2] Records, Pa. 2d Geol. Surv., Reports, Vol. I[5], pp. 329–333; W. Va. Board of Centennial Managers, Resources, Report by Maury and Fontaine, pp. 287–290.
[3] Record, W. Va. Geol. Surv., Report, vol. 1, p. 335.
[4] Ibid., pp. 281–282.
[5] Record, Pa. 2d Geol. Surv., Report, Vol. I[5], pp. 328–329.
[6] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 325–326.
[7] Ibid., p. 339.
[8] Ibid., 351–352.
[9] Ibid., p. 355.
[10] Ibid., pp. 298–299.
[11] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], p. 331.
[12] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 241–242.
[13] Ibid., pp. 242–243.
[14] Ibid., pp. 243–244.
[15] Ibid., pp. 244–246.
[16] Ibid., pp. 246–247.
[17] Ibid., p. 359.
[18] Record, W. Va. Geol. Surv., Report, vol. 1, p. 348.
[19] Ibid., p. 361.
[20] Ibid., p. 360.
[21] Ibid., pp. 323–324.
[22] Record, Pa. 2d Geol. Surv., Reports, Vol. I[5], p. 329.
[23] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 362–363.
[24] Ibid., p. 364.
[25] Ibid., pp. 292–294.
[26] Ibid., p. 369.
[27] Ibid., pp. 321–322.
[28] Ibid., pp. 322–323.
[29] Ibid., p. 285.
[30] Ibid., pp. 296–298.

## WEST VIRGINIA—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Petroleum Station (1¼ miles north).[1] | Ritchie | 1,800 | | | | Oil well. |
| Piney Fork[2] | Wetzel | 2,640 | | | | For oil or gas. |
| Poe District[3] | Hancock | 1,700 | | | | For oil; unproductive |
| Point Pleasant (6 miles below).[4] | Mason | 2,942 | | | | For oil or gas. |
| Ravenswood (near)[5] | Jackson | 2,232 | | | | Do. |
| Ritchie Court-House.[6] | Ritchie | 1,724–1,918 | | | | Several oil and gas wells. |
| Ronceverte | Greenbrier | 800 | | | | For oil; abandoned. |
| Salem | Harrison | 2,100–2,800 | | | | Oil wells. |
| Sardis (vicinity)[7] | do | 3,081 | | | | For oil; abandoned. |
| Sedalia (near)[8] | Doddridge | 2,800 | | | | Large gas well. |
| Shanghai | Berkeley | 714 | 7 | Few. | | Sulphur water at 188 feet; abandoned. |
| Sisterville (near) | Tyler | | | | | Large oil well. |
| Sistersville (2½ miles southwest).[9] | do | 1,865 | | | | For oil or gas. |
| Smithfield (near)[10] | Wetzel | 3,282 | | | | Oil well. |
| Smithfield (2 miles northeast).[11] | do | 3,106 | | | | Do. |
| Spencer (asylum farm).[12] | Roane | 2,750 | | | | For oil or gas. |
| Spencer (about 10 miles southwest).[13] | do | 1,623–2,362 | | | | Several oil and gas wells. |
| Sutton (1½ miles below).[14] | Braxton | 2,725 | | | | Oil well. |
| Ten Mile District[15] | Harrison | 2,750 | | | | For oil or gas; unproductive. |
| Vadis (near)[16] | Lewis | 2,703 | | | | Oil well. |
| Do.[17] | Doddridge | 2,207 | | | | For oil; unsuccessful on account of water. |
| Wadestown (near)[18] | Monongalia | 3,090 | | | | Oil well. |
| Do.[19] | do | 3,112 | | | | Do. |
| Do.[20] | do | 3,300 | 6⅝ | | | Gas well. |
| Waverly (6 miles south).[21] | Wood | 2,261–2,208 | | | | Two oil wells. |
| Wellsburg[22] | Brooke | 1,217 | | | | Numerous deep gas wells; now run out. |
| Do.[23] | do | 1,310 | | | | Gas well. |
| Weston | Lewis | 2,700 | | | | For oil; unsuccessful |
| Do | do | 1,450 | | | | Small flow of oil. |
| Weston (2 miles below). | do | 2,165? | | | | Gas well. |
| Weston (10 miles southeast).[24] | do | 2,401 | | | | Oil well. |
| Wick (near)[25] | Tyler | 1,915 | | | | For oil or gas. |
| Williamstown (1½ miles below).[26] | Wood | 1,504–1,673 | | | | Do. |
| Williamstown (4 miles below).[27] | do | 710–1,138 | | | | Two oil wells. |
| Winfield (?) | Putnam | 500 | | | | Two wells. |
| Wheeling[28] | Ohio | 2,095 | | | | For oil or gas. |
| Wheeling (near).[29] | do | 4,500 | 4⅝ | | | Do. |
| Wheeling (3 miles east-northeast).[30] | do | 2,000 | | | | For oil or gas; unsuccessful. |
| Wordley (near)[31] | Monongalia | 2,830–2,960 | | | | Gas well. |

[1] Record, W. Va. Geol. Surv., Report, p. 301.
[2] Ibid., p. 337.
[3] Record, Pa. 2d Geol. Surv., Reports, Vol. I⁵, p. 327.
[4] Record, W. Va. Geol. Surv., Reports, vol. 1, pp. 273–274.
[5] Ibid., pp. 283–284.
[6] Ibid., pp. 317–318.
[7] Ibid., pp. 248–249.
[8] Ibid., pp. 326–327.
[9] Record, W. Va. Geol. Surv., Report, vol. 1, p. 357.
[10] Ibid., p. 343.
[11] Ibid, pp. 343–344.
[12] Ibid., pp. 264–266.
[13] Ibid., pp. 267–269.
[14] Ibid., 269–270.
[15] Ibid., p. 251.
[16] Ibid., pp. 257–258.
[17] Ibid., pp. 258–259.
[18] Ibid., pp. 233–234.
[19] Ibid., pp. 232–233.
[20] Ibid., pp. 230–231.
[21] Ibid., pp. 292–294.
[22] Record, Ohio Geol. Surv., Report, 1888, Vol. VI, pp. 337–339.
[23] Record, Pa. 2d Geol Surv., Ann. Report for 1886, part 2, pp. 783–784; W. Va. Geol. Surv., Report, vol. 1, p. 367.
[24] Record, W. Va. Geol. Surv., Report, vol. 1, pp. 255–256.
[25] Ibid., p. 359.
[26] Ibid., pp. 290–291.
[27] Ibid., p. 289.
[28] Ibid., p. 366.
[29] Ibid., pp. 364–365.
[30] Record, Pa. 2d Geol. Surv., Ann. Report, 1886, part 2, pp. 781–782.
[31] Record, W. Va. Geol. Surv., Report, vol, 1, pp. 234–237.

## PRINCIPAL PUBLICATIONS RELATING TO DEEP BORINGS IN WEST VIRGINIA.

West Virginia Geological Survey, Reports, vol. 1, by I. C. White, 392 pages, Morgantown, 1899.

Seventh Report on the Oil and Gas Fields of Western Pennsylvania for 1887–1888, Pennsylvania Second Geological Survey, Vol. I[5], by J. F. Carll, 356 pages, Harrisburg, 1890.

## WISCONSIN.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Berlin | Green Lake | 425 | 6 | 40 | +3 | Temp. 52°. |
| Do | do | 450 | | 40 | +3 | |
| Bristol | Kenosha | 815 | 5 | | −32 | |
| Brodhead | Green | 1,000 | 4–8 | Each 150 | +12 | Two wells. Water from 250–300 feet mainly. Granite, 700–1,000 feet. Temp. 52°. |
| Burlington | Racine | 1,000 | 9 | Many. | Flows. | |
| Do | do | 800 | 9 | Many. | −8 | |
| Cassville | Grant | 1,100 | 6 | Many. | Flows. | |
| Clinton | Rock | 650 | | Many. | −30 | |
| Dale | Outagamie | 490 | | Many. | −15 | |
| De Soto | Vernon | 466 | 6 | 126 | +26 | Temp. 52°. |
| Durand | Pepin | 550 | 6 | 180 | +35 | Good water. |
| Durand (5 miles southeast). | do | 402 | 10–6 | 2 | −282 | Do. |
| East Troy | Walworth | 2,200 | | | No flow. | |
| Elkhorn | do | 1,050 | 8–6 | Many. | −155 | |
| Elroy | Juneau | 500 or 600 | | | No flow. | Not in use. |
| Fond du Lac | Fond du Lac | 750 | 10 | Many. | −10 | Two wells. |
| Do | do | 600 | 10 | Many. | −10 | Do. |
| Do | do | 480 | 10 | Many. | −10 | |
| Do.[1] | do | 425 | | | | |
| Genoa | Vernon | 460 | 6 | 200 | −30 | |
| Greenbay | Brown | 950 | | 70 | +14 | Temp. 53°. Several wells. |
| Hartford | Washington | 920 | | 40 | | To be deepened. |
| Haven | Sheboygan | 600 | | | −40 | |
| Do | do | 420 | | | −11 | |
| Hudson | St. Croix | 400–500 | | | | |
| Independence | Trempealeau | 438 | | | −12 | Well in bad order; abandoned. |
| Jamesville[2] | Rock | 1,100–1,033 | 8 | 500 | +35 | Two wells and magnesia; water to +48 at 683 feet. |
| Jamesville (fair ground). | do | ±1,100 | | Not any | No flow. | Abandoned. |
| Kilbourn | Columbia | 1,320 | | | | |
| La Crosse[3] | La Crosse | 573 | 6 | 100 | −16 | Some lime and iron; city supply. |
| Madison | Dane | 736–821 | 10 | Many. | +5½ | Several wells. Temp. 51°. |
| Marinette | Marinette | 716 | 4 | Many. | +21 | Water at 405 and 415 feet only; granite at 716 feet. Temp. 49°. |
| Menomonee Falls | do | 1,700 | 8 | Many. | Nearly to top. | |
| Millville | Grant | 487 | 7 | Several | −369 | |
| Milwaukee[4] | Milwaukee | 1,048 | 4 | Many. | +60 | |
| Milwaukee (near)[5] | do | 1,200 | | 300 | +50 | |
| Monroe | Green | +400 | | | | |
| Oconto | Oconto | ±400 | | 450 | +24 | Temp. 50°. |
| Oil City[6] | Monroe | 510 | | Many. | +25 | Main body of water at 300 feet. |
| Onalaska | La Crosse | 450 | | 284 | To surface. | |
| Oshkosh[7] | Winnebago | 961 | 6 | Many. | −4 | Granite below 700 feet. |

[1] Record, Wis. Geol. Surv., Reports, 1873–1877, vol. 2, p. 153.
[2] Ibid., pp. 166–197.
[3] Record, Wis. Geol. Surv., Reports, 1873–1879, vol. 4, pp. 60–61.
[4] Record, Wis. Geol. Surv., Reports, 1873–1877, vol. 2, p. 164.
[5] Analysis, ibid., p. 164.
[6] Record, Wis. Geol. Surv., Reports, 1873–1879, vol. 4, pp. 59–60.
[7] Record, Wis. Geol. Surv., Reports, 1873–1877, vol. 2, p. 156.

## WISCONSIN—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Oshkosh[1] | Winnebago | 695 | 6 | Many. | −1 | Granite below 665 feet. |
| Do | do | 537 | 5 | Many. | −1 | |
| Oshkosh (normal school). | do | 613 | 5 | Many. | −4 | |
| Oshkosh | do | 505 | 5 | Many. | −1 | Several other similar wells. |
| Palmyra[2] | Jefferson | 750 | | | −14 | Water at 263 feet; oil at 257 feet. |
| Patch Grove | Grant | 487 | 9–6 | Several | −440 | Good water; two other similar wells in vicinity. |
| Platteville | do | 1,000 | | | | |
| Prairie du Chien[3] | Crawford | 960 | 8–5⅛ | 600 | +60 | Temp. 56°. Water slightly salty; brine at 514 feet; several wells. |
| Racine[4] | Racine | 1,240 | | Many. | +65 | Several wells. |
| Do | do | 1,350 | 4 | Many. | +92 | |
| Richland Center | do | 750 | 6 | 2,400 | −11 | |
| Riverfalls | Pierce | 500 | 8–6 | 200 | −6 | No water below 400 feet. |
| Do | do | 400 | 8–6 | 200 | −6 | |
| Rock Elm | do | 520 | 8 | | −120 | Abandoned. |
| Sheboygan[5] | Sheboygan | 1,475 | 4 | 225 | +104 | Temp. 59°. Flow at 1,340 feet. |
| Sherwood | Calumet | 1,035 | | | | |
| Superior | Douglas | 927 | 6 | | | Water brackish. |
| Tornado | Door | 1,040 | 8–6 | Many. | −122 | |
| Tomar[6] | Monroe | 492 | | | No flow. | |
| Two Rivers | Manitowoc | 1,700 | 8 | Many. | No flow. | Abandoned; granite in bottom. |
| Urne | Buffalo | 471 | 6 | | | |
| Watertown | Jefferson | 1,145 | 9 | 600 | +11 | Temp. 47°. |
| Waukesha | Waukesha | 1,000–1,500 | | | −35 | Several wells. |
| Westbend | Washington | 1,500 | | Many. | −4 | |
| West Depere | Brown | 810 | 5 | 250 | +26 | Temp. 65° |
| Western Union Junction.[7] | Racine | 1,263 | | Few. | +40 | |
| Whitewater | Walworth | 950 | | 200 | +20 | |

## PUBLICATIONS RELATING TO DEEP BORINGS IN WISCONSIN.

Wisconsin Geological Survey, Reports, 1873–1877, vol. 2, part 2, pp. 97–405.
Wisconsin Geological Survey, Reports, 1873–1879, vol. 4, part 1, 98 pages.

## WYOMING.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Aladdin | Crook | ±1,000 | | | | No water. |
| Almond | Sweetwater | 1,000 | | | | Strong sulphur water. |
| Cambria[8] | Weston | 1,300 | | | | In progress. |
| Cheyenne | Laramie | 1,145 | | | | |
| Clifton (north of)[9] | Weston | 1,002 | | Few. | Flows. | Mineral water. |
| Dallas | Fremont | 800–1,200 | | | Flow. | Oil wells. |
| Douglas | Converse | 500 | | | +20 | Some oil; much water. |
| Gillette | Crook | 865 | | | −485 | |
| Hilliard | Uinta | 484 | | | | For oil; unsuccessful. |

[1] Ibid, p. 156.
[2] Ibid., pp. 161–162.
[3] Record, Wis. Geol. Surv., Reports, 1873–1879, vol. 4, pp. 61–62.
[4] Record, Wis. Geol. Surv., Rpts., 1873–1877, vol. 2, p. 163.
[5] Record and analysis, ibid., p. 164.
[6] Record, Wis. Geol. Surv., Rpts., 1873–1879, vol. 4, p. 60.
[7] Record, Wis. Geol. Surv., Rpts., 1873–1877, vol. 2, pp. 162–163.
[8] Record, U. S. Geol. Survey, 21st Ann. Rept., 1889–1900, part 4, p. 572.
[9] Ibid., p. 571.

## WYOMING—Continued.

| Location. | County. | Depth. | Diameter. | Yield per minute. | Height of water. | Remarks. |
|---|---|---|---|---|---|---|
| | | *Feet.* | *Inches.* | *Gallons.* | *Feet.* | |
| Jerome[1] | | 520 | | | | |
| Judson | Albany | 540 | | Few. | Flows. | Sulphur water. |
| Laramie | do | 1,015 | | 30 | Flows. | Good water. |
| Do | do | 1,470 | | | | |
| Leach | do | 510 | 5 | | No flow. | |
| Moorcroft (8 miles northwest). | Crook | 1,300 | | | | For oil; unsuccessful. |
| Moorcroft (10 miles northwest). | do | 800 | | | | Two small oil wells. |
| Mullen | Fremont | 1,200 | | Several. | | Oil and sulphur water. |
| Newcastle | Weston | 1,950 | | Several. | Flows. | For oil; unsuccessful. |
| Do | do | 1,340 | | | | Some oil at about 400 feet. |
| Do | do | 420 | | | | Some oil. |
| Newcastle (3½ miles southwest). | do | 720 | | | | No product. |
| Oil City[2] | Natrona | 1,130 | | | | Oil and gas. |
| Oxford Ranch | Albany | 540 | | Few. | Flows. | For oil; unsuccessful. |
| Rawlins | Carbon | 450 | 4½ | 200 | | Several wells. |
| Do | do | 487 | | 400 | Flowed originally. | |
| Do | do | 928 | | 350 | Flowed originally. | Water from 466 feet. |
| Salt Creek oil field[3] | Natrona | 809–1,200 | | | | Oil wells. |
| Sheridan | Sheridan | 500 | 2½ | ½ | | |
| Sussex | Johnson | 1,300 | | Few. | | Water at 358 and 1,120 feet. |

## PUBLICATIONS RELATING TO DEEP BORINGS IN WYOMING.

Petroleum of Salt Creek, Wyoming, by W. C. Knight, University of Wyoming, petroleum series, Bulletin No. 1, 47 pages, June, 1896.

Petroleum of the Shoshone Anticlinal, by W. C. Knight, University of Wyoming, petroleum series, Bulletin No. 2, 34 pages, January, 1897.

Oil Fields of Crook and Uinta Counties, Wyoming, by W. C. Knight, University of Wyoming, Petroleum series, Bulletin No. 3, 31 pages, November, 1899.

A Preliminary Report on the Artesian Basins of Wyoming, by W. C. Knight, University of Wyoming, Wyoming Experiment Station, Bulletin No. 45, 251 pages, plates, map, June, 1900.

Preliminary Description of the Geology and Resources of the Southern Half of the Black Hills and Adjoining Regions in South Dakota and Wyoming, by N. H. Darton, United States Geological Survey, Twenty-first Annual Report, 1899–1900, pp. 489–599, plates, maps, Washington, 1901.

[1] Analysis, ibid., p. 571.
[2] Record, etc., Wyo., Ann. Rept. Geologist, Jan., 1888, p. 32.
[3] Record, Wyoming University, Bull. No. 1 (Petroleum series), 1896, pp. 18–19.